Rice Situation and Outlook Yearbook. Market and Trade Economics Division, Economic Research Service, U.S. Department of Agriculture, November 1999, RCS-1999.

Contents

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Summary

Large Area Expansion, Higher Yields Drive Record U.S. Crop

The 1999 U.S. rice crop is forecast at 211.7 million cwt, up almost 13 percent from last year and the largest on record. The bumper crop stems from an 8-percent increase in plantings to 3.6 million acres—the second highest on record—and a 5-percent increase in average yield.

The area expansion was primarily due to relatively attractive prices for rice at planting compared with alternative crops, especially soybeans in the South. While rice prices had slowly been declining for almost 2 years, they had not dropped as fast as prices for soybeans, the primary rotation crop in the South. Plantings expanded in every State except Texas, with record seedings reported for Arkansas and Missouri. Plantings were a near-record in Mississippi.

Based on farmer surveys conducted in early November, the national average yield is forecast at 5,929 pounds per acre, up from 5,669 pounds a year earlier, but still below the record 6,120 pounds in 1996. Yields are up in all States except Mississippi and Missouri, where they are down only slightly. Record yields are projected for Louisiana and Texas. Although California's yield is projected up 2 percent from last year's extremely low level, it is still one of the lowest since 1982.

Production is up in every State, with record crops projected for Arkansas, Louisiana, and Missouri. Mississippi's crop is projected to be a near-record. Production is up for all grain types as well. Long grain production is projected at a record 152 million cwt, up 7 percent from 1998. Medium grain production is projected 55.9 million cwt, up 26 percent but still below the 1997 crop. The short grain crop—mostly grown in California—is projected at 3.8 million cwt, nearly double a year earlier.

Ending Stocks Largest Since 1986/87

U.S. supplies in 1999/2000 (August-July) are projected at a record 244.4 million cwt, up 8 percent from a year earlier. The larger supplies result from the record crop and larger imports that are expected to more than offset a smaller carryin. Beginning stocks, estimated at 22 million cwt, are down 21 percent from a year earlier. Imports are projected at a record 10.8 million cwt, up 2 percent from a year earlier and continuing a long-term expansion.

In contrast to larger supplies, total use is projected to decline 5 percent to 195 million cwt, with both total domestic use and exports falling. Total domestic use, which includes residual (unreported processing and marketing losses), is projected to drop more than 6 percent to 113 million cwt. Excluding residual, domestic consumption is actually projected to increase 2 percent to a record 106.5 million cwt due to rising food use. Exports are projected to drop 2 percent to 82 million cwt as larger milled rice exports do not fully compensate for a big drop in rough rice exports.

With total supplies exceeding total use, ending stocks in 1999/2000 are projected to more than double to 49.4 million cwt. This yields a stocks-to-use ratio of 25.3 percent, up from 10.7 percent a year earlier. Ending stocks and the stocks-to-use ratio are the largest since 1986/87. Long grain ending stocks are projected at 36.5 million cwt, up 22.6 million from a year earlier, producing a stocks-to-use ratio of 26.2 percent. Both are the highest since 1985/86. Although combined medium/short grain stocks are projected to nearly double to 11.8 million cwt, they will remain below the decade average. The medium/short grain stocks-to-use ratio is projected at 21 percent, up 8 percentage points from 1998/99 but still close to the decade average.

U.S. Prices Drop on Record Supplies, Weaker International Prices

U.S. farm prices, which had been largely supported since 1996/97 by record rough rice exports to Latin America, began slipping this spring on expectations of near-record U.S. plantings, the conclusion of huge rough rice shipments to Brazil, and declining international prices. The U.S. season-average farm price is projected to be $5.50 to $6.00 per cwt in 1999/2000, down from $8.83 in 1998/99 and $9.70 in 1997/98.

Prices for long grain rice have declined the most. Medium grain prices were supported throughout 1998/99 by a very weak 1998 harvest in California—where the bulk of the U.S. medium crop is produced—and smaller plantings in the South. With the start of California's 1999 harvest in late September, medium grain farm prices began to slip as well.

Prices for U.S. long grain milled rice have declined since the summer of 1997. U.S. No. 2, 4 percent brokens (fob Houston) are currently quoted at about $300 per ton, down from $369 in 1998/99 and $415 in 1997/98. Little export business beyond PL-480 sales, a large price premium over comparable grades of Thai rice, and record U.S. supplies are behind the weaker U.S. milled prices. Prices for California medium grain milled rice, which were at near-record levels during most of 1998/99, have declined since September on expectations of a large California crop in 1999. Prices for California No. 1, 4 percent brokens are currently quoted at $441 per ton, down from $470 in 1998/99.

Bumper Crops Worldwide Push Global Stocks to Record Highs

World rice production is projected at a record 396.8 million tons (milled basis) in 1999/2000, up more than 1 percent from a year earlier. Record or near-record crops in major Asian producing countries—China, India, Indonesia, Bangladesh, Vietnam, and Thailand—more than compensate for expected smaller crops in Latin America and the Middle East. World consumption is projected at 394.4 million tons, a record and up more than 1 percent. With production exceeding consumption, ending stocks are projected to climb 4 percent to 59.8 million tons in 1999/2000, the largest on record. The projected stocks-to-use ratio is 15.2 percent, up slightly from last year and the largest since 1992/93.

World trade is projected at 23.2 million tons in 2000, down more than 4 percent from 1999 and 15 percent below the 1998 record. Much smaller Asian imports are expected to more than offset larger imports by Latin America and the Middle East. In 1999, both Asia and Latin America imported much smaller amounts of rice than in 1998 as their crops recovered from El Niño damage in 1997/98.

Since late 1998 when Indonesia and the Philippines completed their record purchases, international rice prices have generally declined. Prices for Thai 100 percent grade B were quoted at $229 per ton in early November, down from $284 in 1998/99 and $302 in 1997/98. The weaker prices are primarily due to much smaller global import demand and abundant export supplies worldwide.

This issue of the *Rice Situation and Outlook Yearbook* contains three special articles. The first article compares net returns to rice and soybeans on rice land in Arkansas. The second examines the potential impacts of herbicide-resistant rice varieties in the U.S. The final article discusses issues important to U.S. rice trade in the upcoming WTO Round.

Rice Conversions

1 cwt = 100 pounds = 2.22 bushels = .0453 metric ton

1 metric ton = 2,204.6 pounds = 22.046 cwt = 48.992 bu.

1 cwt rough rice = .032 metric ton milled

1 metric ton milled = 31 cwt rough

Farm Prices Weaken on Record Supplies

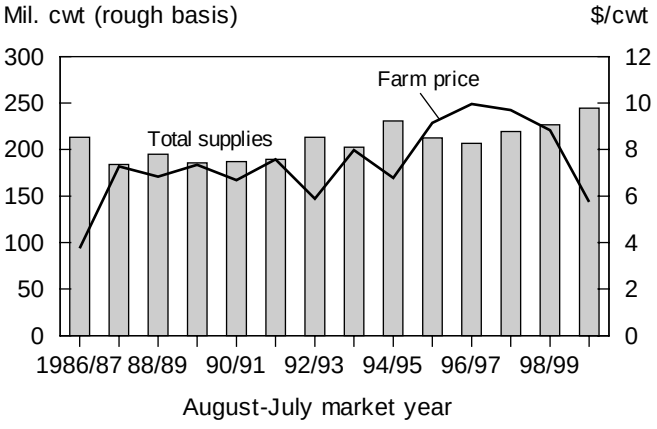
U.S. farm prices are expected to decline during the 1999/2000 (August-July) market year, due to record domestic supplies and weaker global trade. U.S. farm prices have declined substantially since spring on expectations of a record U.S. crop and weaker international prices. The price drop has been much more severe for long grain, as tight supplies supported medium grain prices at near-record heights during 1998/99. By October, medium grain prices began to decline as well, as the bulk of the California harvest was underway.

In November, the 1999/2000 season-average farm price was forecast at $5.50 to $6.00 per cwt, down from $8.83 in 1998/99 and $9.70 in 1997/98. The midpoint of this forecast range is the smallest season-average farm price since 1986/87. From 1996/97 through the first half of 1998/99, U.S. prices were supported by record high rough rice exports to Latin America, with Brazil the largest single market. Most of the rough rice exports were southern long grain. The bulk of the increase was due to El Niño-related crop damage in the region.

With exports accounting for more than 40 percent of U.S. rice disappearance, events in international markets can significantly affect U.S. prices. Internationally traded rice prices have generally declined since late 1998 when record purchases by Indonesia and the Philippines were completed. Prices have generally dropped throughout 1999 on a combination of weaker global import demand and record or near-record crops in nearly all major exporting countries. For 2000, little if any price strength is expected as Asian import demand is again expected to contract and global export supplies remain abundant. Both parboiled and jasmine prices have declined at a slower pace, a result of limited supplies and growing import demand.

Figure 1

U.S. Season-Average Farm Price Projected To Be the Lowest Since 1986/87



1999/2000 projected.
Source: ERS, USDA.

World rice trade is projected at 23.2 million tons in 2000, down 5 percent from this year and 15 percent below the 1998 record of 27.3 million. The weaker trade this year is due to strong crop recoveries in Southeast Asia and Latin America, two regions hit hardest by the 1997/98 El Niño, and abundant export supplies worldwide. In 2000, greater imports by Latin America and the Middle East are not expected to not fully offset continued contraction in Asian imports.

The U.S. price difference over export competitors' prices has substantially declined since late 1997 as U.S. prices for long grain milled rice have dropped more than competitors' prices have fallen. However, the difference remains wide enough to limit U.S. competitiveness in some price-sensitive international markets and prevent U.S. milled prices from rising. The United States faces competition from Asian rice in higher-income markets in South Africa and the Middle East.

In Latin America—where Asia exports very little rice—the United States has recently faced competition from Argentina and Uruguay. The bulk of U.S. shipments to Latin America are rough rice. None of the Asian exporters allow rough rice exports, although South American exporters ship small amounts of rough rice.

Quotes for U.S. No. 2, 4-percent broken (high-quality, long-grain) fob Houston have declined since the summer of 1997 and were less than $300 per ton in early November. Prices averaged $369 in 1998/99 and $415 in 1997/98. Abundant U.S. supplies and weaker international prices are behind the steady drop in U.S. prices.

Prices for California medium grain (f.o.b. Sacramento) milled rice were near record highs during most of 1998/99, due to a very weak 1998 California harvest. Prices averaged $470 in 1998/99, exceeding $500 in many months. Prices are currently quoted at $441 per ton as this year's California harvest—up 17 percent from the weather-reduced crop a year earlier—is over. There is little expectation for any price strength for California medium grain after Japan completes its 1999/2000 minimum access purchases.

By November 4, total exports and outstanding sales were 1.15 million tons, almost 22 percent below a year earlier even though U.S. exports are projected to be just 2 percent

below 1998/99. Last year Brazil imported more than 550,000 tons (product-weight) of U.S. rice, mostly unmilled, in the first 5 months of the market year. This year Brazil has purchased just 3,000 tons.

Larger Area Pushes U.S. 1999 Crop to Record

USDA forecasts the 1999 U.S. rice crop at a record 211.7 million cwt, up 13 percent from 1998. The larger crop stems from an 8-percent increase in plantings to 3.6 million acres—the second largest on record—and a 5-percent increase in average yield. This was the third consecutive year of expanding rice acreage for the Nation and the South.

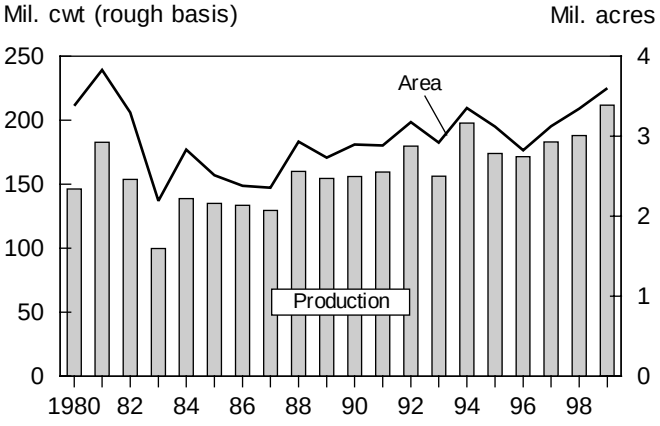
The area expansion was primarily due to relatively attractive prices for rice at planting compared with alternative crops, especially soybeans in the South. While rice prices had slowly been declining for about 2 years, they had not dropped as fast as prices for soybeans, the primary rotation crop in the South. Plantings expanded in every State except Texas, with record plantings reported for Arkansas and Missouri.

The national average yield is forecast at 5,929 pounds per acre, up from 5,669 pounds a year earlier but still below the record 6,120 pounds in 1996. Yields are up in all States except Mississippi and Missouri, where they are down slightly. Record yields are projected for Louisiana and Texas. While California's yield is projected to be 2 percent higher than last year's weather-reduced yield, it is still the second lowest since 1982.

Production is up for all grain types. Long grain production is projected at a record 152 million cwt, up 7 percent from 1998. Medium grain production is projected at 55.9 million cwt, up 26 percent but still below the 1997 crop. The short grain crop—mostly grown in California—is projected at 3.8 million cwt, nearly double a year earlier. Production is up in every State as well, with record crops projected for Arkansas, Louisiana, and Missouri. Mississippi's crop is projected to be a near-record.

Figure 2

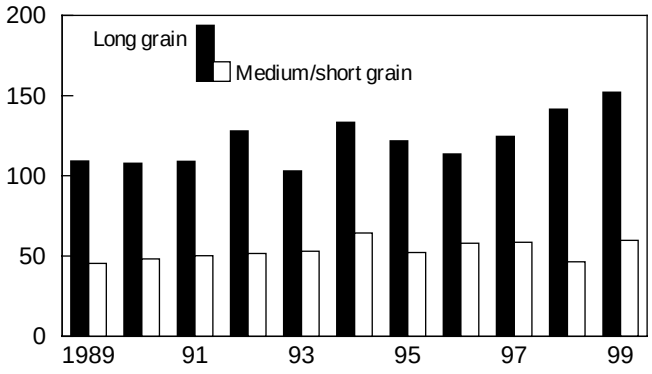
U.S. Rice Plantings Climb to Second Highest on Record



1999 projected.
Source: NASS, USDA.

Figure 3

Long Grain Production Projected at Record High



1999 projected.
Source: NASS, USDA.

Long Grain Plantings Reach Record 2.73 Million Acres

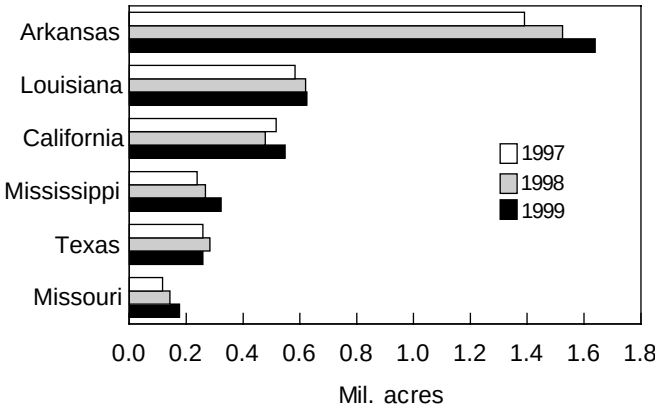
Plantings in 1999 are up from a year earlier for all three grain types, with medium grain accounting for more than half the total 255,000-acre increase. Based on the June 1999 *Acreage* report, medium grain plantings totaled at 823,000 acres, up 21 percent from 1998, with California accounting for more than half the expansion. California recovered from severe weather-related damage in 1998 that cut acreage. Long grain plantings are estimated at a record 2.73 million acres, up 4 percent from 1998 with almost all of the expansion in the South. Generally higher prices for medium grain than long grain at planting account for much of the shift in southern acreage this year to medium grain rice.

Short grain plantings are projected to rise 37 percent to 52,000 acres, the largest since 1989. California accounts for virtually all of the increase. Growing sales of short grain rice to Japan account for much of the area expansion.

Arkansas accounts for 43 percent of the increased total U.S. rice acreage, with plantings rising 110,000 acres to a record 1.65 million. Long grain plantings were reported at 1.4 million acres, up 60,000 and a record. More than 51 percent of U.S. 1999 long grain acreage is in Arkansas. Medium grain rose 50,000 acres in Arkansas to 255,000. Rice plantings in Louisiana expanded 25,000 acres to 650,000. Area was larger for both long grain and medium grain. Mississippi's rice acreage expanded 30,000 acres to 300,000, a near

Figure 4

Arkansas Accounts for the Bulk of the Larger Rice Acreage 1/



1/ Harvested area. 1999 projected.
Source: NASS, USDA.

record. All of Mississippi's rice production is long grain. Missouri expanded rice acreage 15,000 acres to a record 160,000. All of the expansion was for long grain.

In contrast, rice plantings in Texas dropped 15,000 acres—all long grain—to 270,000, continuing a long-term trend of declining rice acreage in the State. Overall, total plantings in the South rose 6 percent to just over 3 million acres, a record, with both long and medium grain plantings higher than a year ago.

California reported the largest percentage increase in plantings, with rice acreage up 19 percent to 570,000 acres, the largest since 1981. Medium and short grain accounted for all of the expansion; long grain plantings actually declined.

USDA will release final acreage numbers by State and grain type for 1999 in January 2000. While Florida also grows rice—planting 16,000 to 20,000 acres of rice annually from 1995 to 1998—this area is not reported by USDA's National Agricultural Statistics Service. Thus Florida is not included in total planted area and production estimates. Florida's rice plantings exceeded 20,000 acres from 1991 to 1994, up from less than 15,000 from 1988 to 1990. All of Florida's rice production is long grain. Data on Florida rice plantings are compiled by the Rice Technical Working Group and are reported annually in the *Rice Journal*.

Record Yields Projected for Texas and Louisiana

The forecast yield of 5,929 pounds per acre is up almost 5 percent from last year and the third highest on record. The higher projected yield is primarily due to some recovery in California from 1998's extremely low yield and very favorable growing conditions in the South, especially the Gulf Coast. In 1998, yields in the South were well below trend due to very hot and dry weather in much of the region.

Louisiana and Texas are projected to achieve record yields. Yields in Texas are estimated at 6,300 pounds per acre, nearly 13 percent above a year earlier. Louisiana, which reports the lowest yields among the six rice producing States, is estimated to have an average yield of 5,000 pounds per acre, up 10 percent from 1998. In Arkansas, the average yield is estimated at 6,000 pounds, up more than 3 percent from a year earlier and second only to the 1996 record of 6,150 pounds. Yields are down 100 pounds per acre in Mississippi and Missouri—to 5,800 and 5,700 pounds.

Average yields in California are projected at 7,000 pounds per acre, up 2 percent from 1998's extremely weak yield but still the second lowest since 1982. California experienced abnormally cool weather during pollination in July, contributing to some blanking this year.

Record Crops Projected for Arkansas, Louisiana, and Missouri

Arkansas is projected to harvest a record 98.4-million-cwt rice crop, up more than 11 percent from 1998. The record crop stems from record plantings and a higher yield. Arkansas is projected to account for more than 46 percent of total U.S. rice production in 1999. Louisiana is projected to produce a record 31.3-million cwt crop, up 11 percent from 1998, due to a record yield and a small increase in plantings.

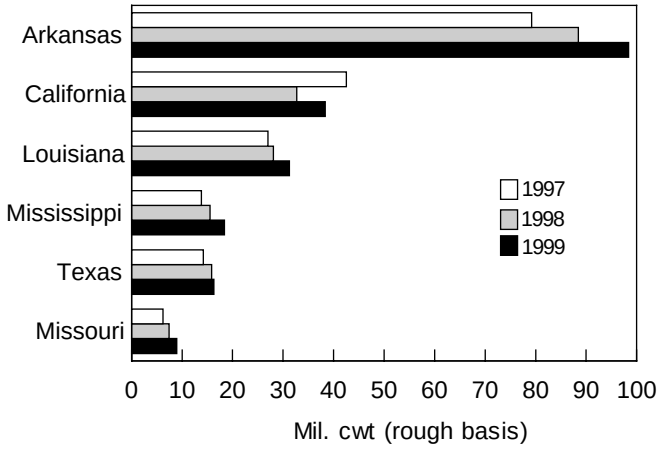
Missouri, the smallest rice producing State (excluding Florida, whose production is not reported by USDA and is not included in total crop projections or estimates), is projected to produce nearly 9 million cwt of rice, a record and up nearly 21 percent from last year. The bumper crop is the result of record plantings. Rice production has expanded significantly in Missouri during the past 15 years.

Mississippi's rice production is projected at 18.4 million cwt, up more than 18 percent from 1998 and virtually tied with the 1994 record. The larger crop is the result of increased plantings; yields are slightly down. Rice production in Texas is projected at 16.6 million cwt in 1999, up 3 percent from a year earlier, as a record yield offsets a decline in plantings.

Outside the South, California's crop is projected to rise 17 percent to 38.4 million cwt, a result of greater plantings and a slightly higher yield. While up substantially from 1998's weather-damaged crop, production is still 10 percent below the 1997 record.

Figure 5

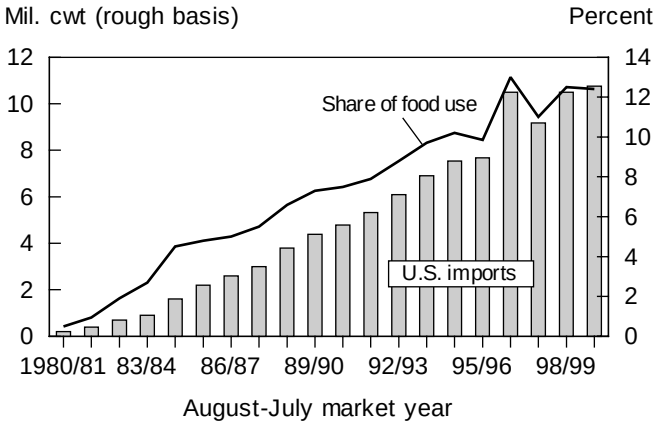
Rice Production Rose in All States in 1999



1999 projected.
Source: NASS, USDA.

Figure 6

Imports Account for 12 Percent of U.S. Food Use of Rice



1999/2000 projected.
Source: ERS, USDA.

Record U.S. Rice Supplies Forecast for 1999/2000

U.S. rice supplies are projected to be a record 244.4 million cwt, up 8 percent from 1998/99 and nearly 6 above the previous record of 231.1 million cwt in 1994/95. A record crop and slightly greater imports are projected to more than offset a smaller carryin. Beginning stocks on August 1 were reported at 22 million cwt, down 21 percent from a year earlier. California, whose August 1 stocks were 5.2 million cwt (rough-equivalent), reported a 50-percent decrease from a year earlier and accounted for the bulk of the year-to-year contraction. Beginning stocks in Mississippi and Texas were reported below a year earlier as well.

There were significant differences in beginning stocks by grain type. Long grain rice stocks entering the 1999/2000 marketing year were 13.9 million cwt, 4 percent below a year earlier despite a 7-percent increase in the 1998 long grain crop from a year earlier. Combined medium/short grain stocks were just 6.9 million cwt on August 1, 1999, down 44 percent from a year earlier and the lowest since supply and use were first reported by type in 1982/83. The huge reduction was primarily due to an almost 21-percent reduction in combined medium/short grain production in 1998. Adding to the extremely tight stocks situation for medium/short grain rice is the fact that the harvest in California—where the bulk of medium grain is produced—does not begin until late September.

U.S. rice imports in 1999/2000 are projected at a record 10.75 million cwt, up 250,000 cwt from a year earlier. About 90 percent of U.S. imports are long grain rice. Although still a small portion of total U.S. rice supplies (less than 5 percent in 1998/99), imports have been steadily increasing for the past 18 years. Almost 75 percent of U.S. rice imports are from Thailand—mostly jasmine rice. Most of the remainder is basmati rice from Pakistan and India. Italy has been a long-time supplier of very small shipments of arborio rice, a high-quality japonica rice unique to Italy. For the last 6 years Vietnam has exported small quantities of long grain milled white rice to the United States.

Food Use Drives Growth in Domestic Consumption

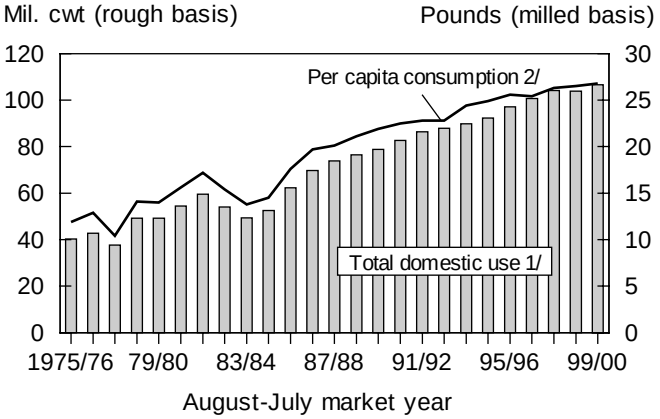
Total U.S. rice use, including exports, domestic consumption, and residual (unreported loses in processing and marketing), is forecast at 195 million cwt in 1999/2000, down almost 5 percent from the year-earlier record. The decline is the result of weaker exports and smaller total domestic disappearance.

Total domestic disappearance (domestic use plus residual) is projected at 113 million cwt, down more than 6 percent from the year earlier record. In contrast, total domestic use (food, beer, and seed) is projected to rise more than 3 percent to a record 106.5 million cwt. Food use, projected to climb more than 3 percent to a record 87 million cwt, accounts for all of the expansion in domestic consumption. Expansion in food use has slowed from more than 5 percent a year from 1985/86 to 1995/96, to around 3 percent currently.

Brewers' use remains flat at 15.4 million cwt. Brewers' use has shown no sustained growth for a decade and has declined as a share of domestic use. Declining per capita beer sales, greater popularity of "lite" beers, and competition from imported beers account for the stagnation of rice use in beer. Seed use is projected at 4.1 million tons, down 7 percent from a year earlier. Seed use is totally dependent on the number of acres expected to be planted next year.

Figure 7

U.S. Rice Consumption Has Doubled in 20 Years



1/ Includes food use, processed foods, brewers' and seed use.
2/ Direct food use, processed foods, and beer.
1999/2000 projected.
Source: ERS, USDA.

Total food use of rice has almost doubled over the past 15 years. Two factors account for this rapid expansion. The most important has been strong growth in per capita consumption since the late 1970's. Second has been continued growth in total U.S. population.

While changing culinary preferences of the U.S. population toward grain-based foods have spurred some of the growth, much of the expanded food use has been due to large increases in the Asian and Hispanic segments of the U.S. population that have occurred during the last two and a half decades. Per capita consumption of rice by Asian- and Hispanic-Americans far exceeds the U.S. average. A large and growing share of this consumption, however, has been supplied by imports of the preferred aromatic rice such as Thai jasmine and basmati from India and Pakistan. Projected total rice imports of 10.75 million cwt are expected to account for more than 12 percent of food use.

U.S. Exports Projected To Drop in 1999/2000

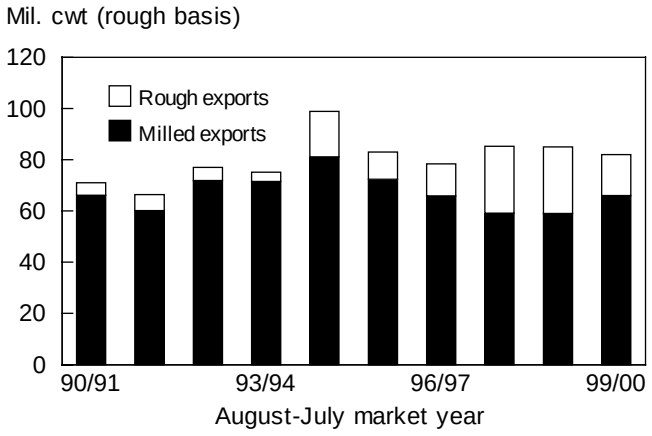
U.S. rice exports in 1999/2000 are projected at 82 million cwt, down 2 percent from a year earlier and the smallest since 1996/97. Greater milled rice exports are projected to be more than offset by a big drop in rough rice exports. Milled rice exports are projected at 66 million cwt (rough basis), up 14 percent from a year earlier and the first increase since 1995/96. The year-to-year expansion is based on lower prices making U.S. rice more competitive in price-sensitive markets and greater food aid shipments—partly due to lower prices as well.

In contrast, U.S. rough rice exports are projected to drop 38 percent to 16 million cwt in 1999/2000, the smallest since 1996/97. Virtually all of the reduction is for long grain rice. U.S. rough rice exports reached record levels in 1996/97 and 1997/98, with much of the expansion due to huge shipments of southern long grain to South America in response to severe crop damage from El Niño. In 1999 South American rice production recovered, as the region produced a record crop. U.S. rough rice exports to Mexico and Central America continue a long-term expansion. Turkey is the only significant market for U.S. medium grain rough rice.

All of the year-to-year reduction in exports is for long grain rice, projected to decline nearly 5 percent to 66 million, the smallest since 1996/97. Medium/short grain exports are projected to climb 17 percent to 16 million cwt, the highest

Figure 8

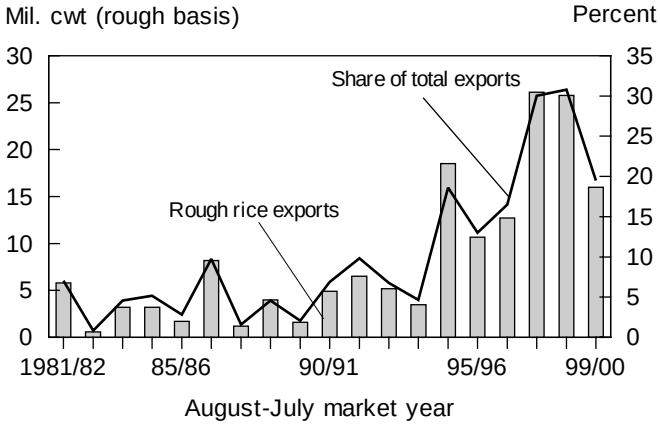
U.S. Milled Rice Exports Projected To Rise in 1999/2000



1999/2000 projected.
Source: ERS, USDA.

Figure 9

U.S. Rough Rice Exports Projected To Drop 38 Percent in 1999/2000



1999/2000 projected.
Source: ERS, USDA.

since 1996/97. A much larger crop and expanding sales to Japan are behind the robust export projection.

Due to the diversity of cropping seasons, marketing years, and milling rates, international rice trade is measured on a calendar year, milled-equivalent basis. The U.S. calendar year export forecast for 2000 is 3 million tons, up 250,000 from 1999 even though world trade is projected to drop slightly. Record U.S. supplies, lower prices, and smaller 1999/2000 production in Latin America are behind the expected expansion. The U.S. share of world trade is forecast at almost 13 percent in 2000, up from almost 12 percent this year, as U.S. exports are projected to increase while world trade contracts. The U.S. share of world trade has generally declined over the past 15 years.

Latin America, the Middle East, Europe, Japan, and Canada are expected to remain the top markets for U.S. rice. The bulk of U.S. shipments to Latin America are rough rice, although the Caribbean imports brown and rough rice. The Middle East is primarily a milled rice market, except for Turkey, which imports both rough and milled. Europe imports mostly brown rice from the United States with a significant share parboiled. Southern Europe also imports a small amount of rough rice. Japan imports both milled and brown rice. Canada remains a steady U.S. market, taking mostly milled rice and some brown.

Unlike other major rice exporting countries, the United States services a large, high-valued domestic market that generally bids the U.S. price well above the international price. The price premium is most often measured by the difference between offer price quotes for U.S. number 2, 4-percent broken, milled long grain rice, f.o.b. Gulf ports, and Thailand 100-percent grade B, milled long grain rice, f.o.b. Bangkok. Historically, U.S. rice exports compete very well with a premium of $30 to $50 per ton. As the premium rises, price-sensitive markets, particularly in the Middle East, switch to lower cost sources.

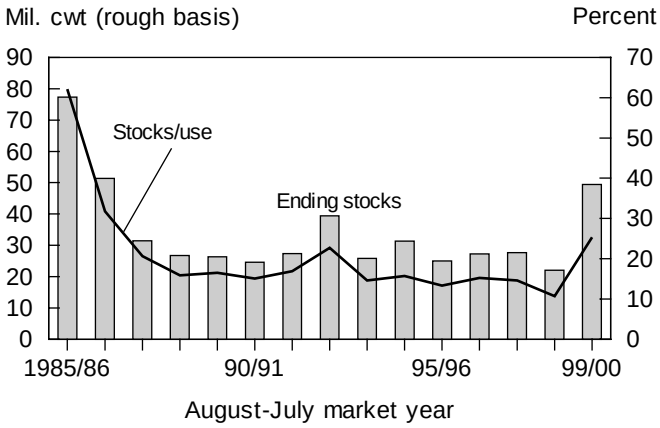
Currently, U.S. rice is sold in international markets at nearly $70 per ton higher than comparable grades of Thai rice. However, in recent years the price difference at which U.S. rice can remain competitive has likely risen. The U.S. export market share has shifted to Latin America (where Thailand ships very little rice) and a larger portion is exported as rough rice (of which Thailand exports none).

U.S. Stocks To Exceed 49 Million Cwt in 1999/2000

U.S. ending stocks are projected at 49.4 million cwt in 1999/2000, up nearly 125 percent from a year earlier and the largest since 1986/87. The huge stocks stem from record supplies and weaker total use. Stocks as a share of total use are forecast at 25.3 percent, up substantially from 10.7 percent a year earlier, and the highest since 1986/87. Stocks of this size will likely prevent any price increase in the near future.

Figure 10

U.S. Ending Stocks To Be Highest Since 1986/87



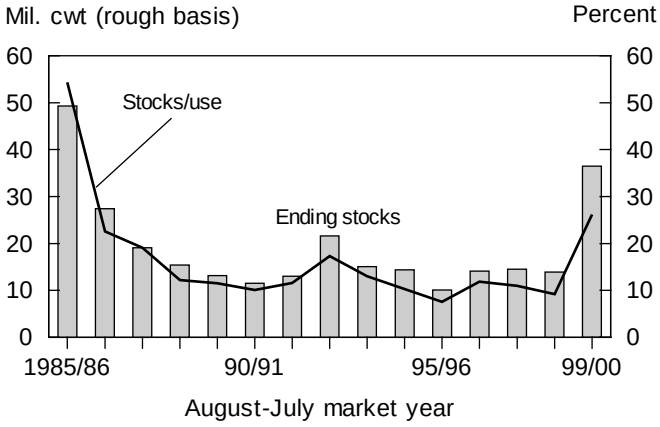
1999/2000 projected.
Source: ERS, USDA.

However, there are some differences in stocks by grain type. For long grain rice, 1999/2000 ending stocks are projected to rise 160 percent from a year earlier to 36.5 million cwt, due to a record crop. With total use expected to decline 8 percent, the long grain stocks-to-use ratio is projected to nearly triple to 26.2 percent. The long grain ending stocks and stocks-to-use ratio are the largest since 1985/86.

For combined medium/short grain, ending stocks are projected to rise 71 percent to 11.8 million cwt, primarily because a recovery in production will likely outweigh expanded exports. Larger stocks and greater total use are

Figure 11

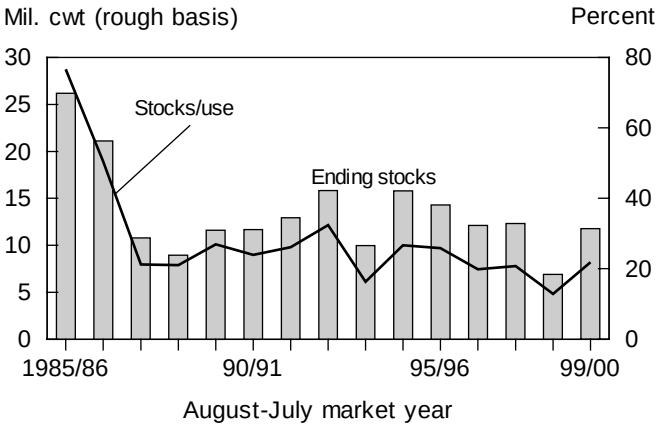
Long Grain Ending Stocks To Nearly Triple In 1999/2000



1999/2000 projected.
Source: ERS, USDA.

Figure 12

Combined Medium/Short Grain Ending Stocks Remain Below Decade Average



1999/2000 projected.
Source: ERS, USDA.

expected to yield a stocks-to-use ratio of 21 percent, up from 12.8 percent a year earlier. While up substantially from last year, both ending stocks and the stocks-to-use ratio are similar to averages for the past decade.

Marketing Loan Gains in 1999/2000

The marketing loan program was introduced in 1986 to improve the competitiveness of U.S. rice in international markets. During much of the early and mid-1980s, loan rates exceeded international prices and isolated U.S. rice from the market. Under the marketing loan program, loan repayment rates are linked to the prevailing world price of rice rather than the loan rate. This prevents the loan rate from acting as a price floor for U.S. rice in international markets.

Income gains to producers would occur only if foreign prices (represented by the weekly announced world price) fall below the announced loan rate of $6.50 per cwt for rough rice. Since the start of the 1995/96 market until this spring, world prices exceeded the loan rate. In fact, the announced world price has exceeded the loan rate for long grain rice since May 1995, and for medium and short grain since August 1995. Hence no marketing loan benefits were accrued.

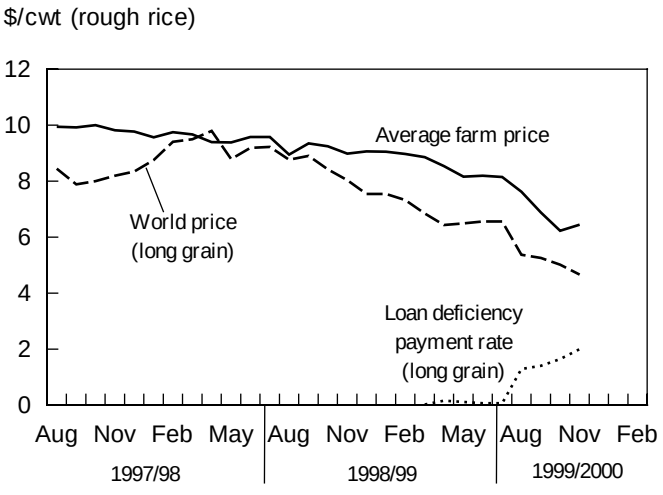
In spring 1999, world prices had declined enough to trigger marketing loan gains, although the payment rate was quite small until August. Payment rates did not exceed $1 per cwt until mid-August. Payments steadily rose and were $2 by early November.

U.S. Government-Assisted Exports

Three types of government programs facilitate exports of U.S. rice. Under PL 480 and other food aid programs, the United States sells rice on concessional credit terms and donates rice to needy countries either bilaterally or through the World Food Program. Commercial sales under the Export Credit Guarantee Program (GSM-102) and the Intermediate Export Credit Guarantee Program (GSM-103) help private and government importers who have foreign currency constraints to purchase U.S. agricultural products. GSM-102 guarantees loans of 3 years or less, while GSM-103 guarantees loans of 3 to 7 years. Finally, the Export Enhancement Program (EEP) facilitates U.S. rice sales to markets where the United States competes with subsidized exports from other countries.

Figure 13

U.S. Farm Prices Have Declined Since Spring

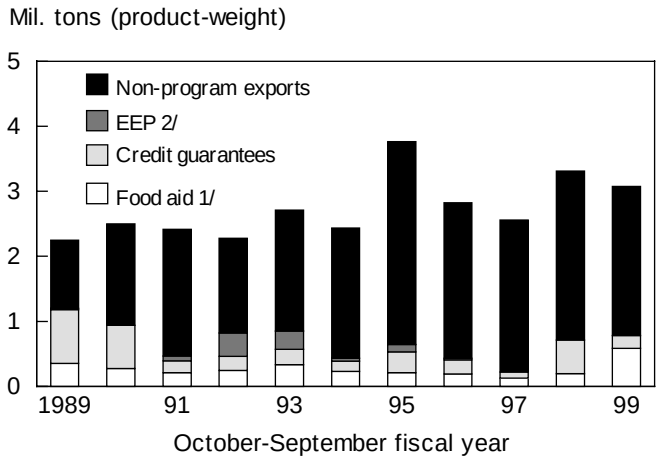


Montly world prices and loan deficiency payment rates based on weekly data. November 1999 mid-month.

Source: Monthly farm prices, NASS, USDA; World prices and loan deficiency payment rates, FAS, USDA.

Figure 14

U.S. Food Aid Shipments Rose in Fiscal 1999



1/ Includes Pl 480 Titles I, II, and III and Food for Progress.
2/ Export Enhancement Program.
Sources: FAS, FSA, and ERS, USDA.

Total rice shipments under export credit guarantee programs peaked in fiscal 1989 at 826,000 tons, with Iraq importing 530,000 tons and Mexico 108,000 under GSM-102. An additional 355,000 tons were exported as food aid in 1989. For total food aid shipments, the record high was almost 1.2 million tons in 1972, accounting for 71 percent of total U.S. rice exports. Total government-assisted rice exports, food aid plus credit guarantees, reached a near record 1.2 million tons in 1989, accounting for over 50 percent of U.S. exports.

However, the termination of the GSM-102 program for Iraq, tighter budgets, and—until this year—higher prices, have largely been responsible for declining food aid shipments and a smaller share of total U.S. exports accounted for by export programs in recent years. From an average of almost 50 percent in the second half of the 1980s, the share of total U.S. rice exports accounted for by government programs (including credit guarantees) dropped to a low of just 9 percent in fiscal 1997. Total shipments under export programs had declined from 1.2 million tons in fiscal 1989 to just 220,000 in 1997.

Total program exports in fiscal 1999 are estimated at 782,000 tons, with credit guarantees accounting for nearly 198,000 tons (based on registrations, not actual shipments) and food aid shipments almost 585,000 tons. Combined, these export programs accounted for 25 percent of total U.S. rice exports in 1999, up from 22 percent a year earlier. In fiscal 1998, total program exports were 715,000 tons (520,000 tons in credit guarantees (based on registrations) plus almost 195,000 tons for food aid). Exports under credit guarantees in 1998 were the largest since 1990. Brazil was the largest recipient, accounting for more than 200,000 tons.

For 1999, Title I, or concessional sales, accounted for more than 330,000 tons and Title II almost 199,000 tons (including about 60,000 tons shipped under the World Food Program). These were substantial increases for both Title I and II. Indonesia was the largest Title I recipient, taking more than 118,000 tons. Russia was received about 100,000 tons and the Philippines nearly 60,000 tons. Other Title I recipients were Jamaica and the Ivory Coast. Major recipients in 1999 under Title II included Indonesia, the Ivory Coast, Togo, North Korea, Russia, Nicaragua, Ghana, Honduras, and the Dominican Republic.

In fiscal 1998, the United States exported about 44,000 tons of rice under Title I. Indonesia received about 26,000 tons, Jamaica around 13,000, and Angola about 5,000 tons. Shipments under Title II totaled about 140,000 tons.

The EEP program was originally intended to counterbalance subsidized exports by the European Union (EU). Thus EEP bonuses have traditionally been used to assist medium grain exports to countries bordering the Mediterranean Sea. Today, the EEP's purpose is to counterbalance subsidized exports from specified exporters, i.e., not just the EU. But with declining EU rice exports in recent years, the importance of EEP subsidies has diminished. There have been no rice EEP sales since August 1995 and no shipments since late 1995. Total EEP allocations are capped at 39,000 tons in 2001 in accordance with the Uruguay Round of the General Agreement on Tariffs and Trade (UR-GATT). However, this is not expected to become a major constraint for rice because most EEP monies are used to support wheat exports. In addition, access to rice markets gained through the UR-GATT is likely to be of greater long-term benefit to U.S. rice.

U.S. Farm Prices Dropped In 1998/99

A bumper U.S. crop, weaker international prices, and smaller trade in 1999 were responsible for generally weaker U.S. farm prices in 1998/99, especially during the second half of the market year. The season-average farm price for 1998/99 (August-July) was $8.83, down from $9.70 a year earlier and $9.96 in 1996/96.

Long grain prices began the 1998/99 season around $9.50 per cwt, but began to soften by late fall when the record Brazilian imports had been completed. By spring, long grain prices were under further pressure by expectations of near-record 1999 plantings and an almost steady decline in international prices. By season's end, prices were about $7.00 per cwt. In contrast, prices for both California and southern medium grain were nearly $11 per cwt during most of the season, due to severe weather problems in California and smaller plantings in the South. The near-record prices for medium grain rice limited the decline in average monthly cash prices and in the season-average price in 1998/99.

For long grain milled rice, U.S. prices dropped throughout the 1998/99 market year, largely due to declining Asian prices. Prices in international markets began to drop at the end of the third quarter when Indonesia and the Philippines completed their record imports. Prices for No. 2, 4-percent brokens Texas long grain (f.o.b. Houston) were $408 at the start of the 1998/99 market year, down from $430 a year earlier. Prices dropped to $375 by February and $331 by the end of the market year. In contrast, prices for California medium grain began the 1998/99 season at $408 per ton but rose throughout the market year, reaching $518 by late July, a near record. In fact, by spring there were very limited supplies to satisfy regular domestic users.

Total Supplies and Use Up From 1997/98

Total U.S. supplies in 1998/99 were 226.5 million cwt, up more than 3 percent from a year earlier. A 3-percent larger crop, an almost 2-percent increase in beginning stocks, and a nearly 14-percent increase imports were behind the larger supplies. All of the increase was for long grain, which was up 12 percent from 1997/98 to 164.6 million cwt, a record at the time. In contrast, supplies of combined medium/short grain rice, estimated at 60.7 million cwt, were down 15 percent from a year earlier. A 21-percent drop in 1998/99 production was responsible.

Total use (including residual) in 1998/99 was a record 204.5 million cwt, up almost 7 percent from a year earlier. A 15-percent increase in total domestic use and residual more than offset a 3-percent drop in exports to 83.6 million cwt. Rough rice exports dropped slightly to 25.8 million cwt, fractionally below the year-earlier record of 26.1 million cwt. Milled rice exports dropped 4 percent to 57.9 million cwt. Both long grain and combined medium/short grain exports were smaller in 1998/99.

U.S. ending stocks are estimated at 22 million cwt for 1998/99, down 21 percent from a year earlier as a 3-percent increase in total supplies was more than offset by 7-percent expansion in total use. The resulting stocks-to-use ratio was 10.7 percent. Both stocks and the stocks-to-use ratio were the lowest since 1986/87. Combined medium/short grain accounted for the bulk of the reduction in ending stocks, dropping 44 percent to 6.9 million cwt. For long grain rice, ending stocks dropped 4 percent to 13.9 million cwt, yielding a stocks-to-use ratio of 9.2 percent.

South America Was Top U.S. Export Market

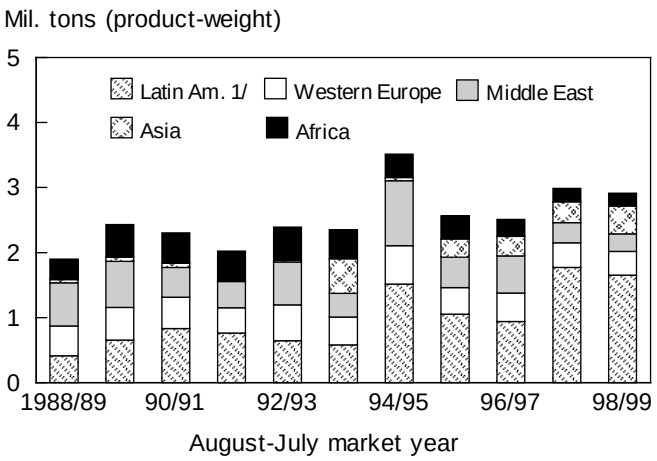
U.S. rice exports in 1998/99 totaled 2.76 million tons (milled basis), down less than 1 percent from 1997/98. On a regional basis, South America was the largest export outlet for U.S. rice, taking a record of almost 530,000 tons (milled equivalent basis), up 14 percent from a year earlier. Record exports to Brazil of 398,000 tons—mostly southern rough rice—accounted for nearly all of the increase. In contrast, U.S. shipments to Colombia and Ecuador were down sharply as crops in both countries recovered from El Niño damage.

Asia took nearly 410,000 tons of U.S. rice in 1998/99, up 44 percent from 1997/98. The increase was due to steadily growing sales to Japan and more than 85,000 tons of food aid shipped to Indonesia. U.S. exports to Sub-Saharan Africa expanded fractionally to 188,574 tons, primarily on larger sales to the Republic of South Africa.

In contrast to these growing regional markets, U.S. exports to North America declined almost 15 percent from 1997/98 to 421,485 tons, due primarily to weaker shipments to Mexico. Shipments to Canada were slightly down. The Caribbean took 360,769 tons, down 5 percent from 1997/98. Smaller exports to the Dominican Republic account for most of the contraction. In contrast, Haiti imported nearly 220,000 tons, up 24 percent from 1997/98. U.S. exports to the EU dropped 8 percent to 308,080 tons. U.S. shipments to the Middle East—once the top international market for U.S. rice—dropped nearly 56,000 tons to 247,458. Smaller shipments to Saudi Arabia, Turkey, and Jordan—the major U.S. markets in the region—account for weaker sales to the region.

Figure 15

Latin America Is the Largest Export Market for U.S. Rice



1/ South America, Central America, the Caribbean, and Mexico.
Source: Bureau of the Census, Department of Commerce.

The total value of U.S. rice exports in 1998/99 was slightly more than $1 billion, down 4 percent from a year earlier. The reduction was primarily caused by lower prices. The highest total value U.S. rice market in 1998/99 was Asia.

The total value of U.S. rice exports to Asia rose 12 percent in 1998/99 to nearly $292 million. South America was another top market for U.S. rice based on value, with a total of more than $183 million, up 11 percent from 1997/98. Brazil accounted for almost all of the increase.

The value of U.S. shipments to other regions declined in 1998/99. U.S. rice exports to the EU totaled $126 million, down 8 percent from 1997/98, a result of both lower prices and smaller shipments. Imports by the Caribbean totaled $122 million, down 12 percent. Exports to the Middle East totaled $106 million, a drop of more than 10 percent. Imports of U.S. rice by Sub-Saharan Africa totaled nearly $71 million, a 2-percent drop from 1998/99. Finally, rice exports to Central America totaled $67 million, a drop of more than 31 percent.

On a single country basis, Japan was the highest valued single country market, with U.S. exports totaling almost $141 million, a 10 percent increase. Shipments to Brazil were valued at $133 million—second only to Japan. The value of U.S. rice exports to Mexico dropped 23 percent to $77 million. To Canada, the value dropped 8 percent to $72 million. Expanding shipments raised U.S. exports to South Africa to $32 million, up 17 percent from 1997/98.

Abundant Supplies Expected To Keep International Export Prices Weak

For the 1999/2000 global crop year, weaker import demand and abundant export supplies worldwide will likely prevent a significant increase in international trading prices. World rice production is projected at a record 396.8 million tons (milled basis) in 1999/2000, up more than 1 percent from a year earlier. Record or near-record crops in major Asian producing countries—China, India, Indonesia, Bangladesh, Vietnam, and Thailand—are more than compensating for smaller crops in Latin America and the Middle East. World consumption is projected at 394.4 million tons, a record as well, and up more than 1 percent.

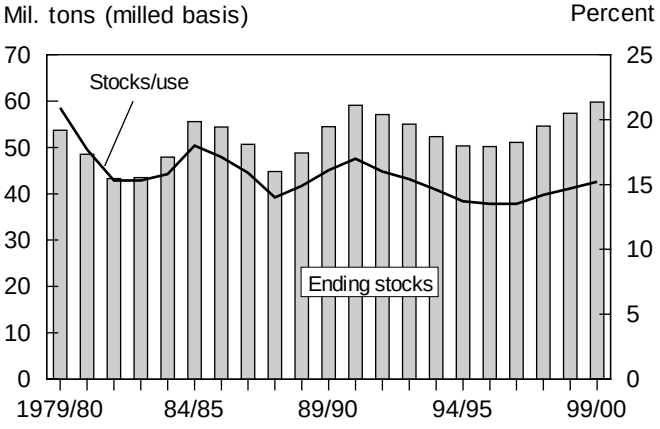
With production exceeding production, ending stocks are projected to climb 4 percent to 59.8 million tons in 1999/2000, the largest on record. The stocks-to-use ratio is projected at 15 .2 percent, up slightly from last year and the largest since 1992/93.

World trade is projected at 23.2 million tons in 2000, down more than 4 percent from 1999 and 15 percent below the 1998 record of 27.3 million. Much smaller Asian imports are expected to more than offset larger imports by Latin America and the Middle East. In 1999, both Asia and Latin America imported smaller amounts of rice as crops in key importing countries—most importantly Indonesia, the Philippines, and Brazil—recovered from El Niño damage in 1997/98.

Since late 1998 when Indonesia and the Philippines completed their record purchases, international rice prices have declined. Prices for Thai 100 percent grade B were quoted at $229 per ton in early November, down from $284 in 1998/99 and $302 in 1997/98. These were the lowest price quotes since the summer of 1994. The weaker prices are primarily due to much smaller global import demand and abundant export supplies worldwide. Prices for Vietnamese 5-percent broken rice were quoted at $215 per ton in early November, down from $230 at the beginning of August and

Figure 16

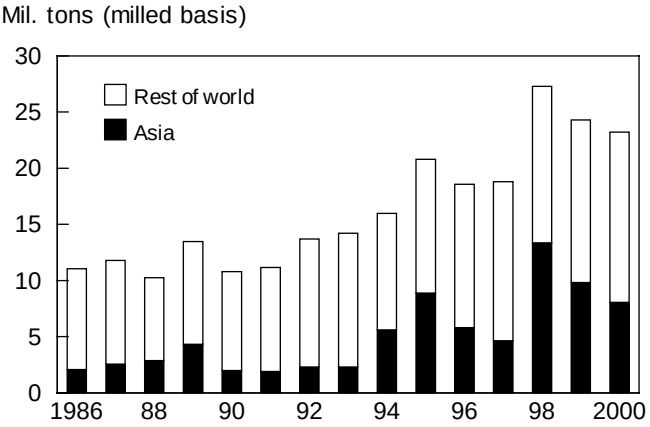
Global Ending Stocks Are the Largest on Record



Aggregate of local marketing years. 1999/2000 projected.
Source: FAS, USDA.

Figure 17

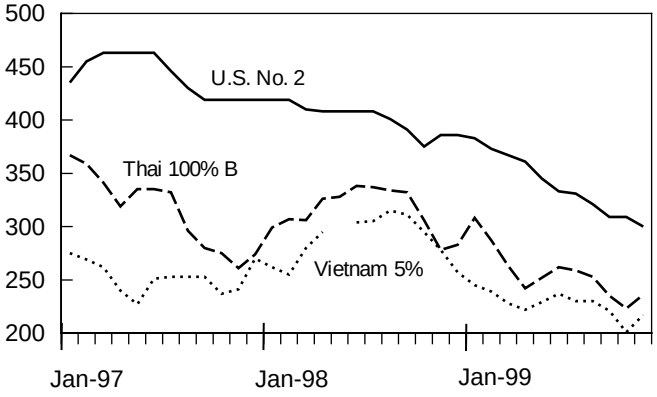
Asia Accounts for Bulk of Drop in Global Rice Imports



1999 and 2000 projected.
Source: FAS, USDA.

Figure 18

International Rice Prices Are Lower Than a Year Earlier



U.S. price quotes, f.o.b., Houston. Thai price quotes, f.o.b., Bangkok. Vietnam's price quotes, f.o.b., Saigon.

Sources: U.S. price quotes, AMS, USDA; Thai price quotes, U.S. embassy in Thailand; Vietnam's price quotes, industry sources.

$250 in early January. Prices were $315 in mid-September 1998 just prior to the conclusion of the record imports by Indonesia and the Philippines.

Prices for similar type and quality U.S. long grain rice—No. 2, 4-percent brokens, f.o.b. Houston—also declined during the 1998/99 market year and have weakened thus far in 1999/2000. Prices for U.S. long grain rice have generally declined since the summer of 1997 when the Asian financial crisis erupted. The decline has been especially strong since this spring as global demand has contracted, a record U.S. crop was expected, and competitors' prices dropped. In early November 1999, the U.S. price was quoted at under $300 per ton, well below $375 in February and more than $400 at the start of the 1998/98 market year.

Major Exporters

Thailand: Thailand is expected to remain the world's largest rice exporter with 5.8 million tons projected for 2000, down from 6.1 million in 1999. The drop is primarily due to weaker demand and stock building. Thailand's 1999/2000 crop is projected at 15.4 million tons (milled basis), up more than 2 percent from a year earlier and the second largest on record. The larger crop is due to slightly larger plantings and a higher yield.

Thailand traditionally competes with the United States in certain high-quality long grain rice markets—primarily in the EU, the Middle East, and South Africa—and with Vietnam, India, Pakistan, and Burma in various intermediate- and low-quality long grain markets. Thailand exports mostly indica rice and smaller quantities of premium jasmine rice, an aromatic.

Burma, Pakistan, and Vietnam typically sell intermediate- and low-quality indica rice at significant price discounts to Thailand. India is currently priced out of most indica markets due to internal pricing policies. India also has quality problems with some of its rice and logistical problems that limit its reliability. Burma is currently exporting very little rice.

Vietnam: Vietnam is the world's second largest rice exporter and is projected to produce 19.8 million tons in 1999/2000, down slightly from the 1998/99 record. A slight drop in area accounts for the projected decrease. Vietnam's exports are projected to drop 100,000 tons from this year's record to 4.1 million due to weaker global demand and a smaller crop. All of Vietnam's rice exports are indica rice, mostly intermediate and low quality.

Vietnam produces three major rice crops a year. The summer-autumn crop accounts for 26 percent of annual production and is harvested July through October. The tenth-month crop typically accounts for 27 percent of production and is harvested between November and February in the south. This crop is declining in area and is the lowest yielding of Vietnam's three crops. The largest crop, the winter-spring crop, accounts for almost half of total production and is harvested in February.[1] The winter-spring crop has expanded more than 75 percent since 1988/89 and has the highest yield of the three crops.

United States: The United States is projected to export 3 million tons of rice in 2000, up 250,000 from this year bit still 5 percent below 1998. Expectations of expanding exports are the result of record U.S. supplies, lower prices, and smaller expected crops in Latin America. The U.S. share of world trade is projected at nearly 13 percent, up from 11 percent in 1999. Southern indica accounts for the bulk of U.S. rice exports, with Latin America, the EU, Saudi Arabia, Canada, and South Africa the largest markets. The U.S. also exports smaller quantities of japonica rice, mostly to Japan, Turkey, and Jordan. California supplies most of U.S. japonica exports. The U.S. share of world rice trade has generally declined over the past 15 years.

Pakistan: Pakistan is projected to export 2 million tons of rice in 2000, unchanged from this year's record. Pakistan's crop is projected at a record 4.8 million tons, up nearly 3 percent from 1998/99, due to expanding area and a higher projected yield. Pakistan exports both high-quality basmati rice—which sells at a substantial premium in high-income markets—and intermediate- and low-quality non-aromatic long grain rice to developing countries where it competes with Thailand and Vietnam. Around a third of Pakistan's production is basmati. West Africa, Bangladesh, Iran, Indonesia, the United Arab Emirates, and Saudi Arabia were leading export markets for Pakistan in 1997/98. The government of Pakistan is actively trying to increase rice production through price incentives, timely availability of inputs, and technical assistance.

India: For 2000, India is projected to export 1.5 million tons, down 1.25 million from 1999 and well below the country's 1998 record of 4.5 million. Much weaker imports by Bangladesh, continued expansion in domestic consumption, stock rebuilding, and uncompetitive prices are behind the much smaller export forecast. India is projected to produce a record 1999/2000 crop of 85.5 million tons, up slightly from 1998/99. Like Pakistan, India exports both a premium-priced basmati to higher income countries and low-quality non-aromatic long grain milled rice to developing countries. Principal markets for basmati rice are the Middle East, the EU, and the United States. Russia, South Africa, other Sub-Saharan Africa, and the Middle East are major exports markets for India's non-basmati rice. Much of India's non-basmati exports to South Africa and the Middle East are parboiled.

[1] The harvest dates are for production occurring in southern Vietnam. Harvest dates differ in the north, but most rice production occurs in the south.

China: China's 2000 exports are projected at 2.75 million tons, up 250,000 from this year's 2.5 million and second only to the 1998 record of 3.734 million. Several straight years of bumper crops plus a projected record 1999/2000 rice crop of 141 million tons are behind the robust export forecast. China announced a new grain policy this spring that reduces incentives to plant low-quality early rice, which is grown mostly in the south. It is too early to know what the long term impact of this policy will be on China's rice production and available exports. Much of the early rice crop is of poor quality and is either stored for years or used as feed.

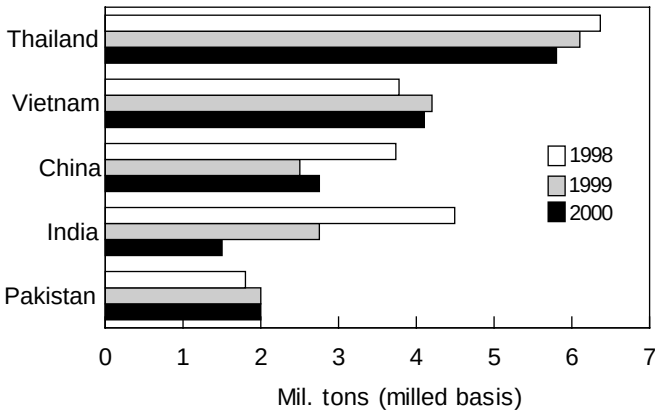
China is both an exporter and importer of rice. From the mid-1960s to 1988 China was a major net exporter, usually ranking fourth and typically exporting 1 to 2 million tons of rice a year. In 1973 China exported 2.6 million tons, a record until 1998. China was a net importer in 1989, but was again a net exporter from 1990 to 1994. However, rice production in China declined in 1993/94 and 1994/95. As a result China was a major net importer in 1995 and 1996, as exports sharply declined and imports averaged 1.4 million tons annually. China has been a net exporter since 1997. USDA's long term baseline forecast projects China to remain a viable net exporter over the next decade.

Burma: While once the world's largest rice exporter, Burma currently exports less than 100,000 tons a year. Burma's 1999/2000 rice crop is projected at 9.55 million tons, up nearly 3 percent from a year earlier, a result of greater area. However, production remains below the 1995/96 record of 9.86 million tons. Burma's exports are projected to increase 25,000 tons to 100,000 in 2000, about the same as in 1998.

Burma's exports averaged almost 1.5 million tons a year in the early and mid-1960s, but declined to an average of only 542,000 tons from 1967 to 1989. Exports declined to a then-historic low between 1990 and 1993, averaging only 193,000 tons. Burma's exports rebounded in 1994 and 1995, averaging more than 600,000 tons annually, but plummeted to 265,000 tons in 1996. Inability to increase output from its dry season crop, difficulty in acquiring government rice quotas from farmers, and higher domestic consumption are behind the recent poor export performance. Trade is strictly controlled by the government in Burma.

Figure 19

Except for India, Asian Exports Are Projected To Remain Strong in 1999 and 2000



1999 and 2000 projected.
Source: FAS, USDA.

Burma's marketing and milling infrastructure remains antiquated and is unlikely to improve in the near future. As a result, Burma continues to export low-quality, but competitively priced, long grain rice. Historically, most of Burma's rice exports are 25-percent brokens with the remainder being parboiled and small quantities of high-quality long grain rice.

Australia: Australia's 1999/2000 crop is projected at 950,000 tons, down 4 percent from the year-earlier record. Area is projected to drop fractionally and yields to decline to trend levels. With a bumper harvest, exports are projected to remain a record 700,000 tons. Australia's rice farmers plant in October and harvest in April-May. The rice crop is grown primarily in New South Wales. Australia produces and exports primarily high-quality japonica rice and has captured a substantial share of the Japanese market since WTO-required imports were first purchased in 1995/96. Papua New Guinea and certain countries in the Middle East are other major export markets for Australian rice producers. Limited supplies of water for irrigation constrain any significant expansion in Australia's rice production.

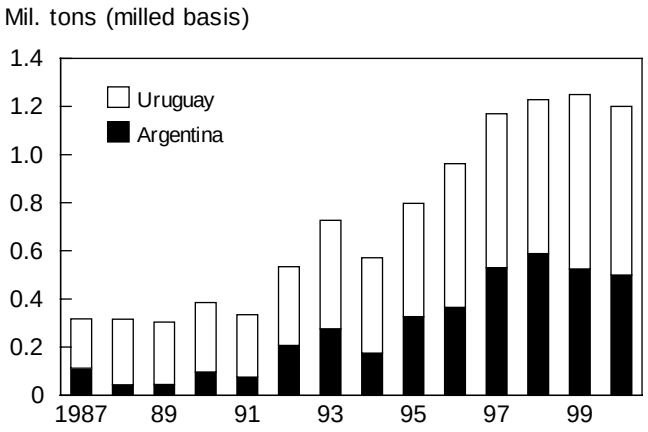
South America: Rice crops in South America's two largest rice exporting countries, Argentina and Uruguay, are expected to decline from 1999, a result of smaller crops and weaker regional demand. Both produced record crops in 1999 as area expanded on strong prices and yields were extremely high. Argentina and Uruguay export primarily indica rice.

Argentina is projected to produce 850,000 tons in 1999/2000, down 21 percent from a year earlier, a result of smaller plantings and a return to more typical yields. Exports are projected to drop 25,000 tons to 500,000. Similarly, Uruguay's crop is projected to drop 5 percent to 850,000 tons as area drops on lower prices and yields return to more typical levels. Uruguay is projected to export 700,000 tons in 2000, down 25,000 from this year's record.

Both area and rice production have been increasing in Argentina and Uruguay for well over a decade, a result of expanding export opportunities—mostly in Latin America. Both countries are expected to continue to focus their efforts on the substantial Brazilian rice market under the special trade arrangements afforded them by their membership in the MERCOSUR trade block (which includes Argentina,

Figure 20

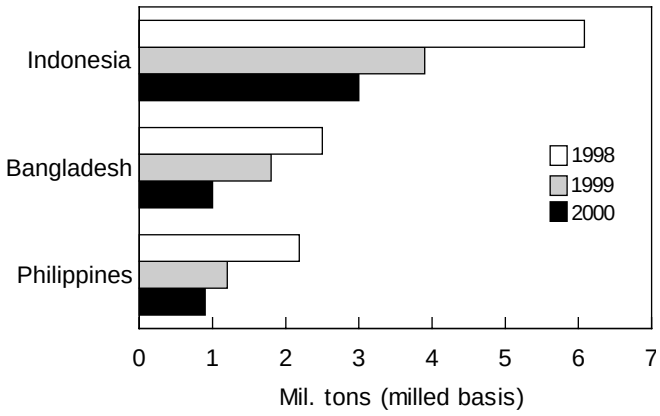
Argentina and Uruguay Are Projected To Reduce Exports Slightly in 2000



1999 and 2000 projected.
Source: FAS, USDA.

Figure 21

Three Countries Account for Most of Reduced Asian Imports



1999 and 2000 projected.
Source: FAS, USDA.

Brazil, Paraguay, and Uruguay). USDA's long term forecast (February 1999) puts Argentina's exports above 1 million tons by 2006. Slower long term expansion is projected for Uruguay's rice exports.

Major Importers

Indonesia is projected to remain the world's largest rice importer, taking 3 million tons in 2000, down from 3.9 million this year and its record 6.1 million in 1998. Indonesia's 1999/2000 crop is projected at 32.1 million tons, unchanged from 1998/99 but up 3 percent from 1997/98's drought-reduced crop. However, production remains below the 1995/96 record of 33.2 tons. Use has exceeded production since 1992/93, causing Indonesia to regularly import large amounts of rice.

Indonesia was the world's leading rice importer during the 1970s, averaging over 1.3 million tons annually. During the mid-1980s, the Indonesian government was able to temporarily end nearly all rice imports through a program of national self-sufficiency. However, continuous area losses from Java's prime irrigated paddy fields, rising national consumption, and already high yields by Asian standards appear to have ended Indonesia's period of self-sufficiency. Indonesia is projected to remain a major importer of rice for the foreseeable future.

The Philippines is projected to import 900,000 tons in 2000, a drop of 300,000 tons from this year's level and less than half the 1998 record of almost 2.2 million. The decline stems from a strong crop recovery from the 1997/98 El Niño. Primarily because of larger area, the Philippines is projected to produce a record 7.4 million tons in 1999/2000, up 11 percent from 1998/99 and 14 percent larger than 1997/98's drought-reduced crop.

Despite the improved production outlook, the Philippines' food situation remains tight. Consumption, projected at a record 8.4 million tons (milled), is expected to exceed milled rice production by 1 million tons. This marks the ninth consecutive year that consumption has exceeded production. Lack of resources to expand rice growing areas and develop or even maintain infrastructure, little success in increasing yields—which are low by developing Asian standards—and steadily increasing population indicate the Philippines will be a regular importer of substantial quantities of rice in the foreseeable future.

Bangladesh is projected to produce a record crop of 19.5 million tons in 1999/2000, up 2 percent from a year earlier, largely due to greater area. At 10.5 million hectares, rice plantings are the largest since 1986. Two consecutive years of record production have lowered Bangladesh's projected imports to 1 million tons in 2000, down from 1.8 million this year and well below the 1998 record of 2.5 million.

Bangladesh's constant population pressure drives an upward trend in consumption and leaves little room for error. Bangladesh has a preference for parboiled rice, although price is a limiting factor and may force imports of low-quality milled long grain if cheap parboiled is not available. India supplies the bulk of the country's rice import needs. Bangladesh is projected to remain a major importer of rice over the next decade.

China's 2000 imports are forecast at 400,000 tons, up 200,000 from this year. Most of China's imports are fragrant rice from Thailand that are bought by high-income urban consumers. China is self-sufficient in rice, given the current policy environment. For 2000, China's 2.75 million tons of exports will exceed imports by 2.35 million.

China's government does not appear willing at this time to allow the country to depend on the world market for any substantial portion of its rice needs. Greater rice imports would allow some farmers to shift to higher priced horticultural crops. When China was a net importer in 1995 and 1996, some thought the country might become a regular major importer and change its policy of rice self-sufficiency to one of partial food grain self-sufficiency. Alternative crops, poultry, and hogs generally offer higher returns than rice farming. However, China has harvested bumper crops since 1997/98.

Japan and South Korea have opened their rice markets to limited imports in accordance with minimum access criteria of the UR-GATT. Both countries have extremely strong preferences for japonica varieties for table consumption. The United States competes with Australia and China, and to a lesser extent Italy and Egypt—for the medium grain exports into these East Asian markets. However, Japan and South Korea have large rice processing capacities that use long grain rice, opening the import competition to other potential suppliers, mostly Thailand.

Under the UR-GATT, Japan's minimum access criteria were scheduled to rise from nearly 380,000 tons (milled basis) in 1995/96 to 758,000 tons by 2000/01. South Korea's minimum access amount is much smaller, rising from only 57,000 tons (milled basis) in 1995/96 to 205,000 tons by 2004/05. In late 1998 Japan opted for rice tariffication as part of the GATT-WTO. This allowed the rate of growth in its annual rice imports—.8 percent of base period (1986-88) consumption—to halve in return for allowing over-quota imports.

Japan must import 644,000 tons of rice before the end of its 1999/2000 fiscal year (April-March), and 682,000 tons the following fiscal year in accordance with UR-GATT minimum access import criteria. The tariff on over-quota imports was set at 352 yen per kilogram for 1999/2000, nearly five times the average price of U.S. rice imported in 1998/99. To date there have been no over-quota rice imports. Japan is projected to produce 8.35 million tons of rice in 1999, up 2 percent from a year earlier as higher yields offset continued contraction in area—a result of the government's rice area diversion program

South Korea's 1999/2000 crop is estimated at 5.22 million tons, up more than 2 percent from a year earlier when a cool, wet summer severely cut yields. Area is estimated at almost 1.07 million hectares, slightly above a year earlier. Rice area in South Korea had been declining for a decade prior to 1997. South Korea's rice consumption has been trending downward since 1979/80. At 5.0 million tons in 1999/2000, consumption will be more than 20,000 tons below milled production.

South Korea is scheduled to import about 114,00 tons (brown rice basis) of rice under the WTO in 1999/2000. Through October, South Korea had purchased 66,000 tons of medium grain from China and 10,000 tons of indica from Vietnam. In 1998/99, South Korea purchased 99,764 tons, almost 93,000 tons from China and 7,000 from Thailand.

North Korea is projected to import 250,000 tons in 2000, down 50,000 from this year but about the same as in 1998. North Korea's rice production is projected at 1.5 million tons, up 100,000 tons from a year earlier, a result of higher yields. Most of North Korea's rice imports will be concessional in nature. North Korea's rice production has contracted severely since the late 1980s. Existing data suggest that during the 1980s North Korea's rice production averaged 2.06 million tons on 642,000 hectares, with an average paddy yield of nearly 4.7 tons per hectare. From 1990 to 1998, rice production averaged 1.42 million tons on 596,000 hectares with paddy yields of less than 3.5 milled tons per hectare.

The EU is projected to import 750,000 tons in 2000, up 50,000 from this year but well below imports in the mid-1990s, a result of steadily increasing production. The 1999/2000 EU harvest is projected at 1.75 million tons, up almost 4 percent from a year earlier due to a higher yield and second only to the 1997 record of 1.8 million tons. An almost 8-percent increase in Italy's crop to 870,000 tons accounts for the bulk of the production increase. Spain and Greece are projected to harvest record crops.

Italy accounts for the bulk of EU exports outside the region. The EU imports indica rice—with the United States and Thailand the largest supplier—and basmati from India and Pakistan. The EU exports japonica rice, mostly to countries in the eastern Mediterranean. The EU exports smaller amounts of rice—mostly food aid—to the former Soviet Union, North Korea, and Sub-Saharan Africa.

The Middle East is traditionally the world's strongest market for high-quality rice—mostly parboiled, premium long grain varieties, and basmati—led by Iran, Iraq, and Saudi Arabia. Rice imports by the region are projected to rise 13 percent in 2000 to a near-record 3.63 million tons. A 250,000-ton increase in Iran's imports to 900,000 tons accounts for most of the increase. Iran's 1999/2000 crop is projected to drop nearly 9 percent to 1.6 million tons on smaller plantings and a weaker yield. Iran is suffering a severe drought this year.

Saudi Arabia is projected to import 800,000 tons, up 50,000 from this year. Saudi Arabia does not grow any rice. Turkey's imports are projected at 350,000 tons, up 100,000 from this year. Production is projected to drop slightly on smaller plantings. Turkey is the second largest market for japonica rice—after Japan—and the United States, Egypt, Australia, and the EU are its major suppliers. Iraq's imports are projected to remain at 700,000 tons.

Sub-Saharan Africa: Imports by Sub-Saharan Africa (including the Republic of South Africa) are projected at more than 4 .2 million tons in 2000, down fractionally from the 1999 record. Declining rice prices in international markets have allowed Sub-Saharan Africa to purchase larger amounts of rice. In addition, fixed food aid expenditures are able to buy greater rice at the recent lower prices. With the exception of the Republic of South Africa, Sub-Saharan Africa has traditionally been a low-quality rice market.

Nigeria is the largest market in Sub-Saharan Africa, with imports projected at 850,000 tons, up 50,000 from a year earlier. Thailand supplies most of Nigeria's rice imports. The Republic of South Africa is projected to import 575,000 tons, up 25,000 from 1999. India, Thailand, and the United States supply most of South Africa's rice. South Africa does not produce rice. Both Nigeria and South Africa are large markets for parboiled rice.

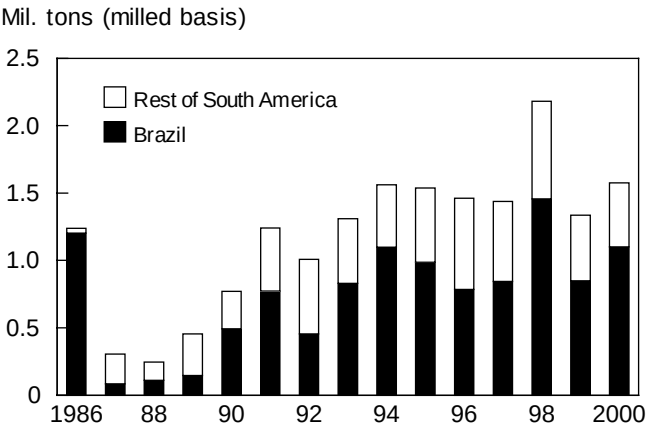
Latin America: Imports by Latin America (Central America, the Caribbean, South America, and Mexico) are projected at nearly 3 million tons in 2000, up from 2.7 million in 1999, due to smaller production. Imports, however, remain below the 1998 record of almost 3.5 million tons, which were largely driven by El Niño crop damage to the region. In 1997/98, crops in several importing and exporting countries were severely reduced by El Niño-related weather problems.

Most Latin American rice importers are price-conscious buyers who prefer high-quality rice, but will substitute lower-priced intermediate- and low-quality rice when international prices rise. Latin America is primarily an indica importing market.

For South America, the bulk of milled rice imports are from other South American countries—mainly Argentina and Uruguay. Regional trading preferences and locational advantage account for much of the intra-regional buying. For rough rice imports, the United States is the main supplier. In addition to a locational advantage over Asian exporters, the

Figure 22

South American Imports Projected Higher in 2000 on Larger Brazilian Purchases



1999 and 2000 projected.
Source: FAS, USDA.

United States is one of very few rice exporting countries that allows rough rice exports. In fact, none of the Asian exporting countries ships rough rice. Argentina exports some rough rice, but almost exclusively to Brazil. Also, most South American importing countries provide lower tariffs on imported rough rice than on milled rice.

Brazil is Latin America's largest rice importer. Brazil is projected to import 1.1 million tons in 2000, up 250,000 from this year, a result of smaller production. Imports would still be well below the 1998 record of 1.46 million tons. Brazil's 1999/2000 crop is projected at 6.8 million tons, down 13 percent from the 1998/99 crop of nearly 7.8 million tons, the largest since the 1987/88 record.

Rice consumption has exceeded production every year since 1988/89, making Brazil a major rice importer. Because of special trade arrangements under the MERCOSUR trade agreement, Argentina and Uruguay dominate the Brazilian market.

Rice Plantings in Arkansas: A Comparison of Net Returns for Rice and Soybeans, 1996-1999

William Chambers, Nathan Childs, and Paul Westcott[1]

Abstract: Since 1997, U.S. rice plantings have increased each year, climbing to 3.6 million acres in 1999, the second highest on record. This has occurred even as rice prices have declined. The bulk of the area expansion took place in the South, especially in Arkansas, the largest producing State. Expected net returns—excluding fixed costs—for rice and soybeans are estimated from 1996 to 1999 for a representative Arkansas rice situation. Results indicate that despite the significant drop in rice prices over the past 3 years, expected net returns remained positive and exceeded returns for soybeans, the primary rotation crop in the South, every year.

Keywords: Rice, soybeans, plantings, yields, costs of production, net returns, policy, revenue insurance.

Since 1997, U.S. rice acreage has increased each year, reaching 3.6 million acres in 1999, the second largest on record and more than 27 percent higher than in 1996. The bulk of the area expansion occurred in the South, especially in Arkansas, the largest producing State. All of the area expansion in the South has been for long grain rice, the dominant type of rice produced in the region.

The expansion occurred despite falling rice prices. The season average price has declined from almost $10 per cwt in 1996/97 (August-July) to a projected $5.75 in 1999/2000, fractionally below 1992/93 and the lowest since 1986/87. Why have rice plantings expanded in the face of steadily declining prices? An examination of expected net returns by commodity provides useful insights into annual cropping decisions.

In Arkansas, the primary rotation crop for rice is soybeans. This rotation is mainly used to combat red rice, a weed that competes with rice for sunlight and nutrients. Rice is typically grown in 1- or 2-year rotations with soybeans. Thus, some of the annual shift in acreage between rice and soybeans is driven by agronomic concerns. However, some planting decisions are based on differences in expected net returns among crops.

Net Return Estimates Based on Expected Price, Variable Costs, and Yields

This study estimates expected net returns for rice and soybean production in Arkansas from 1996 to 1999. Net returns per crop-acre are calculated by multiplying the farm price of a commodity by its yield and then subtracting the variable costs incurred during production. [see box "Calculating Expected Net Returns"]

Table A-1--Rice and Soybean Plantings, U.S. and Arkansas, 1995-99

Crop	Rice		Soybeans	
year	U.S.	Arkansas	U.S.	Arkansas
	1,000 acres			
1995	3,121	1,350	62,495	3,450
1996	2,824	1,180	64,195	3,550
1997	3,125	1,400	70,005	3,650
1998	3,345	1,540	72,025	3,550
1999	3,600	1,650	74,145	3,500

Source: National Agricultural Statistics Service, USDA

Fixed costs are not included in the net returns calculations as annual planting choices are viewed as a short-run economic decision. In the long run, returns would have to cover both variable and fixed costs for an individual producer to remain in production.

This analysis focuses on land use decisions, which means that farmers' expectations regarding prices, yields, and costs are of primary importance. Thus, the components of the expected net returns equations are "expected" levels rather than "realized" results. These expected values are estimated using information that was available to producers when planting decisions were made.

Record Supplies, Falling International Prices Pull Down U.S. Rice Prices

U.S. rice prices were largely supported in 1996/97 by relatively high international prices. In 1997/98 and 1998/99, record U.S. rough rice exports—mostly to Latin America—

[1] Agricultural Economists, Economic Research Service, USDA.

supported domestic prices in the face of rapidly falling international prices.

The Asian financial crisis, which began in the summer of 1997, had a major impact on international rice prices, with Thai prices dropping throughout the second half of 1997. By that fall, other exporters' prices dropped as well. Not until Indonesia and the Philippines began making record purchases did international prices stabilize and begin to partially recover. However, international prices began falling again in late 1998 as import demand contracted on strong crop recoveries in Asia and Latin America.

U.S. trading prices for milled rice initially dropped only slightly in response to the Asian crisis, widening the price difference between U.S. and Asian rice. Prices for U.S. milled rice slowly declined for the next 2 years, a response to large supplies and strong international competition.

The record exports to Latin America supported U.S. rough rice prices in 1997/98 and 1998/99 even though total supply was at near-record levels both years. Not until early 1999, given expectations of near-record U.S. plantings and the end of the massive shipments to Brazil, did U.S. rough rice prices, especially for long grain, begin to drop substantially. In 1999/2000, record U.S. supplies, a large reduction in rough rice exports, and weaker world prices have continued to pull U.S. prices down.

U.S. soybean prices began to slide more than a year before rice prices contracted, a result of record U.S. supplies and large crops in major exporting countries. The soybean season-average farm price has dropped from $7.35 per bushel in 1996/97, to $6.47 in 1997/98, and to $5.00 in 1998/99. For 1999/2000, prices are projected to average $4.60 to $5.10.

Expected Net Returns for Rice Exceed Soybeans Each Year

Expected net returns for rice and soybeans are estimated for Arkansas for 1996-1999 (tables A-2 and A-3). A 2000 forecast is also calculated. Expected net returns are based on assumptions regarding farm prices, yields, and production costs for various cropping alternatives. While yields, production costs, and farming practices vary within Arkansas, State-level analysis can still yield useful insights into cropping decisions.

Expected returns for both rice and soybeans were positive throughout this period. For Arkansas rice producers, estimated expected net returns exceeded those for soybeans every year of the study. Except for 1996, rice plantings in Arkansas increased every year. In contrast, Arkansas soybean plantings expanded slightly in 1996 and 1997, and then contracted in 1998 and 1999. Thus, the relatively higher returns for rice compared with other cropping alternatives

Table A-2--Expected net returns for Arkansas soybeans, 1996-2000

Crop year	Expected price	Expected yield	Variable costs of production	Expected net returns 1/
	$/bu	Bu/acre	$/acre	$/acre
1996	7.38	29	86	130
1997	7.21	30	88	130
1998	6.66	30	86	111
1999 2/	5.40	30	86	73
2000 2/	5.40	30	87	72

1/ Totals do not add due to rounding. 2/ 1999 expected price includes 19-cent marketing loan benefit. 2000 expected price based on the October average soybean price and includes a 90-cent marketing loan benefit. Actual receipts may be higher depending on when the LDPs are taken.

Table A-3--Expected net returns, Arkansas rice, 1996-2000

Crop year	Expected price	Expected yield	Variable costs of production	Expected net returns1/
	$/cwt	Cwt/acre	$/acre	$/acre
1996	9.03	54	318	169
1997	9.77	56	314	230
1998	9.45	56	304	226
1999	7.28	58	308	111
2000 2/	7.14	58	316	95

1/ Totals do not add due to rounding. 2/ Expected price based on October average Arkansas long grain price. Includes October average marketing loan benefit for long grain rice of $1.64 per cwt. Actual receipts may be higher depending on when the LDP s are taken.

was likely a factor behind expanding rice plantings in Arkansas despite declining rice prices.

In 1996 Arkansas rice plantings dropped 12.6 percent even though expected net returns for rice exceeded returns for soybeans by almost $40 per acre. In fact, rice plantings declined in every producing State that year. This was likely due to the passage of the 1996 Farm Act, which removed the minimum acreage requirement for rice. Prior to 1996, farmers were required to maintain a minimum level of rice plantings each year in order to be eligible for government payments.

Most analysts had expected rice acreage to decline with passage of the 1996 Act, which eliminated target prices and deficiency payments. In 1996 many rice producers likely rotated land out of rice and into soybeans to combat red rice. This study used aggregate Arkansas soybean data that do not differentiate between irrigated or non-irrigated soybean production. This could create problems in the analysis because soybeans grown on rice land are irrigated, and irrigated soybeans tend to

Table A-4--Comparison of expected returns by commodity, 1996-2000

Crop year	Difference in expected returns 1/	Change in Arkansas rice plantings	Change in Arkansas soybean plantings
	$/acre	--- Percent ---	
1996	39	-12.6	2.9
1997	100	18.6	2.8
1998	115	10.0	-2.7
1999	38	7.1	-1.4
2000	24	NA	NA

NA = Not available

1/ Expected returns for rice minus expected returns for soybeans.

have higher returns. Given the magnitude of the difference in expected returns, this did not cause problems for most years. However, in 1999 the difference in expected returns was only about $40 per acre. The fact that soybean returns on irrigated rice land are underestimated in this analysis may be a more important factor in 1999, given the small difference.

In 1997 and 1998, expected net returns for rice exceeded returns for soybeans by at least $100 per acre. Rice plantings in Arkansas rose nearly 19 percent in 1997 and 10 percent in 1998. In both years, U.S. rice prices were supported by record rough rice exports to Latin America, which sustained substantial crop damage from El Niño. In contrast, U.S. soybean prices have declined sharply since the spring of 1997. In both 1997 and 1998 the difference in net returns between rice and soybeans was large enough to more than compensate for any underestimation of soybean net returns.

Rice Plantings in 1999 Affected by Insurance Supplemental

In 1999, expected net returns for rice and soybeans dropped substantially, primarily due to much lower price expectations, especially for rice. The decline in net returns was much larger for rice, with expected returns more than halving to $111 per acre and exceeding returns to soybeans by just $38 per acre, about the same as the 1996 difference. Yet rice plantings in Arkansas expanded 7 percent in 1999. While an examination of net returns favored rice over soybeans, two additional factors likely affected rice farmers' planting decisions in 1999.

First is the Crop Revenue Coverage (CRC) Plus insurance program offered by American Agrisurance. CRC Plus was a supplemental policy that allowed CRC policyholders to purchase an increase on their CRC base price if they believed that their CRC base coverage was inadequate. The plan offered a minimum revenue guarantee, for the proportion of total acres that are insured, based on the farmer's production history (or yield) and a base price determined by planting-time expectations of prices at harvest.

Last spring the CRC base price was announced at $8.50 per cwt. A payment would be triggered if the combination of price and yield reduced revenue below the guaranteed level (a percentage of the base price times a base yield). Under the CRC Plus endorsement, policyholders could add to the CRC base price by up to $3 per cwt for rice. This could push the base price as high as $11.50 (for the acres covered under the plan), which was well above both cash and futures prices at the time.

As a result, a large number of rice farmers signed up for the plan. The sign-up deadline was February 28, 1999. However, shortly after that deadline, American Agrisurance halved the maximum price supplement to $1.50 per cwt above the base price. On March 10 it stopped offering CRC Plus altogether. On March 25, the company reversed itself and reinstated CRC Plus with the maximum price supplemental set at the halved level of $1.50 above the base price.

It is not known exactly how the company's change affected rice plantings. When the plan was first announced, it likely increased planting intentions. However, after the company stopped offering the extended price endorsement, intended rice plantings may have declined. On balance, the CRC Plus plan likely increased rice plantings. Although the changes to the CRC Plus plan were made before rice plantings were complete in Arkansas, some farmers had already begun preparations to grow rice, making it costly to switch to other crops.

The second is marketing loan benefits. At the time producers were making planting decisions for the 1999/00 crop, USDA's long-term supply and demand projections for 1999/2000 did not indicate any marketing loan payments. That is, the world rice price was not expected to fall below the loan rate of $6.50 per cwt. In fact, the announced world price did not drop below the loan rate until early last spring, and then by only a few cents per cwt. Not until August 1999 did rice marketing loan benefits exceed $1 per cwt. No expectations of marketing loan benefits were included in the 1999 net returns calculations for rice. However, rice farmers may have had some expectations at planting that there would be payments in 1999/2000, and this may have influenced planting decisions.

Analysis of Expected Net Returns Indicates Smaller 2000 Rice Plantings

The above analysis can be extended to forecast net returns for Arkansas rice and soybeans in 2000/01. Because there is currently no trading for November 2000 futures contracts we cannot calculate the expected 2000 price using the futures market. Instead, the expected prices for crop year 2000 are based on current cash prices in Arkansas. In October 1999 soybeans in Arkansas were selling for about $4.50 per bushel with farmers receiving marketing loan benefits of about 90 cents. For rice, long grain rough rice was selling for about $5.50 per cwt in the Delta and marketing loan benefits for long grain rice in October averaged $1.64 per cwt.

Using these reported cash prices and marketing loan benefits, expected net returns for rice are estimated to be $95 per acre, about 14 percent below a year earlier, while those for soybeans are projected nearly unchanged at $72. This tightens the difference between the crops to just $24 per acre, the smallest for any year examined.

Thus, while expected net returns for rice still exceed those for soybeans, it is expected to be by a much smaller margin in 2000. This factor, combined with the absence of the CRC Plus supplemental insurance coverage, suggests smaller rice acreage in Arkansas in 2000. However, it is important to note that many factors, such as weather and international events, can alter the outlook for expected net returns between now and when the 2000 crop is planted.

Calculating Expected Net Returns

Expected Prices

Estimates of expected price are derived in two steps. The first is to obtain a planting-time expectation of a national price at harvest. This price is the average for the November long grain futures contract in February and March. Since rice planting in the Delta begins in early April, futures trading in February and March would be watched closely by farmers deciding what crop to plant. In addition to being a risk management tool, futures prices provide forecasts of prices several months in advance and contain up-to-date market information.

Because national and regional prices typically differ—due to supply and demand differences and transportation costs—it is necessary to calculate a "basis" to adjust national prices to a farm-level price in Arkansas. The basis was calculated by subtracting the October average cash price in Arkansas from the October average of the November futures contract. The November contract was used because it comes due at about the same time that farmers would likely be selling much of their crop, i.e., shortly after harvest. Both the annual basis for each year 1988-1998, as well as the average for the period, were calculated.[1] The average basis for rice was 23 cents per cwt and for soybeans -14.3 cents per bushel. The basis is then subtracted from the prices calculated in step one, resulting in an estimate of farmers' price expectations at planting time for the years 1996-1999.

Any expected marketing loan benefits are added to revenues in the expected net returns equation. For rice between 1996 and 1999, no marketing loan benefits were included because price expectations were consistently above the loan rate. For soybeans, no marketing loan benefits were used for the years 1996-1998. In 1999 the expected soybean price of $5.21 was augmented by a 19-cent-per-bushel marketing loan benefit.

For rice, participating producers were eligible for Production Flexibility Contract payments each year. However, because these payments are not dependent on current plantings, they are not included in net return calculations. There are no flexibility contract payments for soybeans.

[1] Arkansas cash prices for soybeans are reported monthly by USDA. Arkansas long grain cash price data for 1988-1996 are from unpublished industry sources. For 1997 and 1998, Arkansas cash rice prices are from various industry reports.

An alternative method that farmers base next year's planting decisions on are the cash prices they receive for the current year's crop. Cash prices have been declining for both rice and soybeans since 1996/97, but soybeans have been declining at a faster pace. Given the relative price situation for rice and soybeans in the Delta, rice was likely a more attractive cropping option to Arkansas farmers in 1999. Currently in the Delta, soybeans are trading at about $4.50 per bushel and rice is trading for about $5.50 per cwt. These levels, along with current marketing loan benefits, were used as expected prices for the 2000/01 crop.

Expected Yields

Expected yields are calculated using 5-year moving averages. For example, the expected yield for rice in Arkansas in 1996 was the simple average of the State's yield for 1991-1995. Available data for soybean yields do not differentiate between irrigated and non-irrigated land. Since soybeans planted on rice land are typically irrigated and yields are higher on irrigated land, our estimates understate actual soybean yields on Arkansas rice land. Somewhat offsetting the higher yields in the net returns calculations are higher production costs for irrigated soybeans than for non-irrigated. Discussions with several producers indicated that soybean yields on irrigated land could be as high as 40 to 60 bushels an acre, depending on the type of irrigation method used and the particular soil. Additional costs for irrigation were reported at $40 to $50 per acre.

Variable Costs of Production

Variable costs of production data for the Mississippi River Delta were used as a proxy for Arkansas production costs for both rice and soybeans. Cost data published by USDA's Economic Research Service were used for 1996 and 1997. For 1998 and 1999, national-level cost projections from USDA's 1999 Baseline were used to develop regional cost estimates. Calculating the average difference in production costs between the Delta and the United States from 1992 to 1997 did this. For rice, variable production costs in the Delta averaged about 15 percent below the national average while soybean variable production costs were about 7 percent higher. National cost projections from the baseline for 1998 and 1999 were then adjusted to reflect these historic regional differences for both rice and soybeans in Arkansas.

Herbicide-Resistant Varieties in Commercial Rice Production: Implications for the Future

William Chambers and Nathan Childs[1]

Abstract: A number of herbicide-resistant rice varieties is expected to be commercially available within the next several years. The main benefit offered by herbicide-resistant crops is greater control over red rice, a major problem in South. The introduction of these varieties could significantly affect the domestic rice industry by altering production practices, improving yields, and reducing costs. Two of the new varieties are transgenic (genetically modified), which raises concerns over potential consumer acceptance and environmental problems from possible "outcrossing."

A number of herbicide-resistant rice varieties is expected to be commercially available to U.S. rice growers in the next several years. The introduction of these varieties could significantly affect the domestic rice industry by altering production practices, improving yields, and reducing costs.

The main benefit offered by herbicide-resistant crops is greater control over red rice, a weed that competes with rice for sunlight and nutrition. Red rice is a major problem in the Delta and Gulf Coast producing regions. Although California is currently red rice free, production losses from other weeds, some of which are resistant to common herbicides, are a problem. Red rice poses serious production problems because it is closely related to regular rice. Thus, any herbicide that can effectively combat red rice will also kill regular rice. Although red rice is primarily a weed, California grows a very small amount of non-weedy red rice that is sold in commercial markets.

There are currently three varieties of herbicide-resistant rice being developed: (1) *Liberty Link*, (developed by AgrEvo), (2) *Roundup Ready* (developed by Monsanto), and (3) *Clearfield* (developed by Louisiana State University and licensed to American Cyanamid). Both *Liberty Link and Roundup Ready* rice are transgenic—or genetically modified—varieties. In transgenic rice, a gene from another organism is placed in rice by gene transfer technology.

Liberty Link is being developed using biotechnological techniques that allow researchers to isolate a gene from a soil bacterium that is resistant to the *Liberty* herbicide and insert it into commercial varieties of rice. This gene makes *Liberty Link* rice resistant to *Liberty* herbicide. *Roundup Ready* rice is also genetically modified and is resistant to *Roundup* herbicide. *Clearfield* rice, which is resistant to imidazolinone herbicides, is being developed using traditional breeding techniques instead of biotechnology.

Combating Red Rice: A Major Concern of Farmers

Red rice is a serious problem for many producers in the South as it cuts yields and reduces quality. Farmers currently use several management practices to combat red rice. First, they plant rice early to "get ahead" of the red rice, thus allowing the rice to mature earlier than the red rice. This practice typically requires earlier flooding, which raises production costs, especially for water. Another problem is that rice is often planted prior to optimal time, so that temperatures are cooler early in the growing cycle. Early flooded fields are more susceptible to rice water weevil problems, seedling diseases, and blackbird degradation.

A second method producers use to combat red rice is to seed flooded fields by air. Rice seeds that have already sprouted and have soaked in water for 24-36 hours will sink to the bottom. Rice will then "peg down" and begin to emerge through the surface. Red rice cannot sprout in a flooded environment. While quite effective in combating red rice, aerial seeding is more expensive than drill seeding as it requires about 30 percent more seed, may require more water, and incurs the extra expense of an airplane.

A third approach is "mudding-up," or trying to bury the red rice seeds in flooded fields prior to planting. This practice causes many problems. It can be damaging to tractors and other equipment, creates lots of muddy water that takes days to clear, and can increase soil erosion and reduce water quality.

Finally, a rice-soybean rotation is used by farmers to fight red rice. In non-rice years farmers apply chemicals that kill the red rice but do not harm broad leaf plants like soybeans.

[1] Agricultural Economists, Economic Research Service, USDA.

However, net returns for soybeans are typically much lower than for rice in the Delta, where the bulk of the rice-soybean rotation occurs. This reduces the producer's overall returns to land and capital.

Herbicide-Resistant Varieties May Raise Yields, Lower Costs

It is too early to estimate with much certainty the impact of commercial adoption of herbicide-resistant varieties on the U.S. rice industry. However, several major points can be made. First, because herbicide-resistant rice varieties are expected to improve production practices, it is likely that their introduction will raise farm-level yields. Red rice reduces yields in two ways: It competes with the commercial rice crop for nutrients and sunlight, and it forces growers to use management practices that limit yield potential. In addition, mills discount the price of rough rice if it contains any red rice. Adoption of herbicide-resistant varieties has the potential to reduce these problems.

Second, the overall impact of the adoption of herbicide-resistant varieties is likely to lower production costs. While seed costs are expected to be higher, outlays for water, fuel, and custom operations will likely be less. Lower production costs would allow U.S. producers to be more competitive in world markets.

Third, herbicide-resistant varieties may reduce the need to rotate rice with soybeans. Soybeans achieve relatively low yields in the Delta, a result of climate and soil. If not for the need to rotate soybeans with rice, soybean plantings on rice land in the Delta would be substantially less. Thus, some producers with the highest yielding rice land may continuously grow rice, causing a shift in overall acreage to the most productive land. However, the rice-soybean rotation provides other benefits such as diminishing yield losses from other diseases.

Climate and soil conditions on the Gulf Coast are even less conducive for growing soybeans. In fact, it is difficult for producers to grow any viable rotation crop on the Gulf Coast. As a result, many Texas producers idle their rice land in non-rice producing years, contributing little to fixed costs and reducing overall returns. Herbicide-resistant varieties may allow some of these producers to grow rice year after year. The lack of a viable rotation crop is a major problem for much of the Texas rice growing area. Other problems include high water costs, urban encroachment, and migratory birds.

On balance, the combination of higher yields, lower costs, and less need to rotate imply a shifting of rice area to the most productive regions and to the most efficient farms and farm sizes. Rice plantings this decade have averaged more than 3 million acres per year. Yet total rice acreage—including land idled or in rotation—is nearly 6 million acres, with most of the difference used for soybean production, especially in the Delta. With the need for a soybean rotation reduced and given that—due to a lack of markets—acres planted cannot exceed current levels, we would expect that the advent of herbicide-resistant varieties would lead to a shift in production to higher quality rice land. The introduction of herbicide-resistant varieties has the potential to improve production practices, resulting in more efficient rice production, lower cost operations, and higher quality rice.

Transgenic Rice Raises Potential Safety and "Outcrossing" Concerns

Development of transgenic rice is currently aimed at improving agronomic characteristics, primarily herbicide resistance. Other products in development include rice varieties tolerant to cold, heat, and drought stress. In addition, rice breeders are using biotechnology to improve nutritional quality of rice as demonstrated by the recent development of a rice variety with increased levels of iron and vitamin A. This development was led by researchers at the Swiss Federal Institute of Technology and was financed primarily from the New York-based Rockefeller Foundation with additional funding from the European Commission's agricultural research program. This rice could overcome a variety of food deficiencies that are particularly common in developing countries.

In April 1999 USDA removed both a California and a southern medium grain *Liberty Link* transformed line from its list of regulated crops, determining that they do not pose a plant risk to the environment. The ruling allows AgrEvo to carry out extensive variety evaluation in preparation for anticipated commercial availability after the spring of 2001. The first commercial sales of *Liberty Link* rice seed will be japonica varieties adaptable to both the South and California. *Clearfield* rice is anticipated to be commercially available in the spring of 2001. Commercial availability of *Roundup Ready* rice is expected to take a few more years.

Although herbicide-resistant rice offers many benefits to producers, there are several potential problems. One important concern is that herbicide-resistant traits could be "outcrossed" to red rice. That is, there is the potential for the herbicide-resistant trait to move into a red rice plant. If this were to happen, most of the benefits of herbicide resistance would be erased. However, since there are three different types of herbicide-resistant rice being developed, this problem could be managed by growing these varieties in rotation.

In addition, surveys indicate a growing number of consumers are worried about the safety of genetically enhanced foods. These concerns are strongest in the European Union, but exist in other countries as well. Currently, the EU, Japan, Australia, South Korea, Thailand, and New Zealand are developing policies for dealing with genetically enhanced foods. U.S. rice producers will need to be aware of these regulations in their export markets.

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Further Reading

For more information regarding herbicide-resistant rice, see the following articles:

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"IMI Rice Available in 2001," *The Rice World*, March 1999.

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"Herbicide Resistance Closer: Technology Could Eradicate Red Rice," *The Rice Journal*, January 1999.

"Resistant Rice: Improved California Weed Control," *Rice Farming*, February 1997.

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Upcoming World Trade Organization Negotiations: Issues for the U.S. Rice Sector

Nathan W. Childs and Linwood Hoffman[1]

Abstract: Forthcoming World Trade Organization (WTO) negotiations in Seattle are likely to include issues important to the U.S. rice industry. Issues include increased market access, continued reduction in domestic support programs and export subsidies, tighter discipline on state trading enterprises, and uniform world trading rules and regulations for genetically improved commodities. The likely WTO accession by China is an important issue as well. Enhanced market opportunities for the U.S. rice sector depend, in part, upon progress in these areas.

Keywords: Rice, trade, policy, WTO, market access, tariff-rate quotas, export subsidies, domestic support.

The next round of multilateral trade negotiations under the World Trade Organization (WTO) begins in Seattle, Washington, on November 30, 1999. Officials from member countries of the WTO will initiate negotiations on agricultural trade and other trade-related topics. These discussions will continue the progress of reforming agricultural trade rules begun in the Uruguay Round, which concluded in 1994.

The Uruguay Round continued the process of reducing trade barriers achieved in the seven previous rounds under the General Agreement on Tariffs and Trade (GATT), which the WTO replaced. Among its most significant accomplishments was the Uruguay Round Agreement on Agriculture (URAA), under which WTO members committed to cut average tariff levels on all agricultural products, lower the volume of and expenditures on subsidized exports, and reduce aggregate spending on trade-distorting domestic support programs for agriculture. In addition, the URAA established new disciplines on the use of sanitary and phytosanitary (SPS) measures that could be used to restrict trade based on health and safety concerns, and improved the process for settling trade disputes.

The international rice market is characterized by a high level of government intervention, especially when compared with other grains and oilseeds. The bulk of this intervention is in the form of state control of trade, including state trading enterprises. With exports accounting for more than 40 percent of U.S. rice production, the outcome of the upcoming WTO Round will likely have important impacts on the U.S. rice sector.

This article briefly examines trade in the international rice market, identifying key importers and exporters, and segmenting rice trade by type of rice and quality. Next, accomplishments of the Uruguay Round important to rice are discussed. Finally, issues affecting rice trade that are likely to be a part of the upcoming WTO Round are examined.

World Rice Market Stratified by Type and Quality

The international rice market exhibits greater price volatility than other grain and oilseed markets. The greater price volatility arises from several unique characteristics of the international rice market. First, the international rice market is a "thin" market as only about 6 percent of global production is currently traded annually, well below the almost 20 percent for wheat, 12 percent for coarse grains, and nearly 25 percent for soybeans. Thus, variations in production can cause big movements in trading prices. Much of this "thinness" is due to government policies that bar or limit trade.

Second, nearly half of global rice production—grown in a large swath running from Pakistan, south and east through the Philippines—is dependent on the timing of the Asian monsoon. In fact, 90 percent of rice is produced in Asia. Other grains and oilseeds are produced over a more diverse area and are thus less dependent on any single weather pattern.

Third, the international rice market is stringently segregated by type and quality, with little substitution in consumption and production. Market segmentation makes the international rice market even thinner, further contributing to price volatility. More than 75 percent of world rice trade is indica, around 11 percent japonica, almost 9 percent aromatic rice, and the rest mostly glutinous rice.

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Fourth, rice is a critical part of the diet of billions of people in Asia with more than 40 percent depending on rice for over half their daily nutrition. The land and climate of much of Southeast and Northeast Asia are poorly suited for growing other grains and oilseeds, magnifying the critical importance of rice in the lives of billions of people, both as consumers and producers. With few viable substitutes, Asian consumers are not very responsive to changes in rice prices.

And finally, the level of government intervention in the international rice market—i.e., trade barriers, producer supports, and state control of trade—is substantially higher than for the other grains and oilseeds. This is a major factor contributing to price variation in the international rice market. For most developing Asian countries, maintaining adequate supplies of rice and low consumer prices are major policy goals. For higher income Asian countries—principally Japan, South Korea, and Taiwan—the main policy goal is to protect producers from lower priced imports.

The net impact of large government intervention is to shift price instability from domestic markets to the world market and thus magnify price and quantity adjustments. State trading further makes price discovery more costly as state trading enterprises are able to segregate markets by price.

The bulk of world rice trade occurs among developing countries. Thailand, Vietnam, the United States, China, India, and Pakistan are the largest exporters, typically accounting for 75 percent of global exports. Thailand, the world's largest exporter, ships mostly indica rice and smaller amounts of its premium fragrant or "jasmine" rice. India and Pakistan export indica and their premium aromatic or "basmati" rice. The United States and China export both indica and japonica rice. The United States is the only major exporter of "rough" or unmilled rice. Australia, Argentina, Uruguay, Egypt, Guyana, and Italy export smaller amounts of rice. Australia, Egypt, and Italy export japonica; the other three ship indica.

Based on quality, the United States, EU, Australia, and Egypt ship almost exclusively high quality rice. Thailand ships high, medium, and low quality. Vietnam ships medium quality to the Middle East and lower quality to most other markets. China exports high quality japonica to Japan and low quality indica to Asia and Africa. Except for aromatic and some high quality Indian parboiled, India and Pakistan ship low quality rice. The quality of Latin American rice varies, with Argentina and Uruguay exporting mostly high quality.

Although the import market is less concentrated than the export, it is similarly stratified. For indica rice, Indonesia, the Philippines, and Bangladesh are the largest buyers, taking mostly low quality. Iraq and Malaysia are typically medium quality import markets. Iran, Saudi Arabia, and South Africa import mostly high quality indica rice. Brazil is the largest non-Asian rice market, importing mostly high quality indica rice. Mexico and the EU are large importers of high quality indica rice, with Mexico taking mostly rough rice and the EU importing "brown" or husked rice. Africa imports mostly low quality rice and is a major recipient of U.S. food aid.

By type, Japan is the largest importer of japonica rice followed by Turkey, South Korea, and Jordan. Japonica typically sells at a premium to indica in global markets. Aromatic rice, which trades at prices above japonica, is purchased mostly by higher income countries such as the United States, the EU, Hong Kong, and the Middle East. In addition, higher income urban consumers in China import Thai jasmine rice.

The United States accounts for 12-13 percent of global rice exports. Its market share has steadily declined since the early 1980s when the United States was the largest exporter. Except for food aid, the United States does not export to the lower quality markets. The United States is losing market share in the Middle East and South Africa to Asian exporters, mostly Thailand and India. The largest market for U.S. rice is currently Latin America (mostly rough rice), the EU (mostly brown rice), Japan (both brown and milled), Saudi Arabia and South Africa (mostly parboiled), and Canada, mostly milled.

Accomplishments of the Uruguay Round

For rice, the major impact of the Uruguay Round of the GATT has been to increase global rice trade, especially for japonica rice. The URAA was signed in 1994 with the primary objective of reducing barriers to agricultural trade by increasing market access, reducing or eliminating export subsidies, and disciplining domestic support programs that distort production or trade. An examination of the URAA impacts on specific markets and on specific trade issues follows.

Japan and South Korea—The single largest impact to date of the URAA for the international rice market has been the partial opening of the Japanese and South Korean markets to rice imports through a minimum access quota. In the Uruguay Round, countries agreed to convert all nontariff barriers to bound tariffs, and thus base agricultural protection on tariffs. There were exceptions to this requirement. Among several exceptions was rice in Japan and South Korea, where, under a special "rice clause," import quotas were established.

As a developed country, Japan was required to open its domestic market to imports at 4 percent of base period (1986-88) consumption in 1995, rising to 8 percent by 2000. In the case of South Korea, a developing country, the corresponding quota is 1 to 2 percent of base period consumption in the first 5 years, rising to 2 to 4 percent in the next 5 years. The WTO minimum-access imports have been a major factor in expanding global japonica trade and rising

japonica prices. Total imports by both of these countries are now more than 730,000 tons, double the 1995 level, with japonica accounting for the bulk of these imports.

Because climatic conditions limit the area where japonica can be produced, Japan's and South Korea's expanding imports have raised prices and shifted japonica supplies from other import markets. The United States, China, and Australia have supplied the bulk of Japan's and South Korea's rice imports. Of these three suppliers, only China has the potential to expand area significantly.

To date, the United States has been the largest supplier to Japan, accounting for slightly less than 50 percent of Japan's total WTO imports, almost all from California. The U.S. has not supplied any WTO rice to South Korea. China has accounted for the bulk of South Korea's WTO rice imports.

In 1999 Japan adopted a rice tariffication scheme that allowed it to halve its rate of growth in minimum access imports from a rate of .8 percent of base period use to .4 percent in return for allowing over-quota imports. Japan has set its 1999/2000 fiscal year (April-March) tariff for over-quota rice at 351 yen per kilogram, or nearly 5 times the average price of U.S. rice exported to Japan in 1998/99. The tariff is scheduled to drop slightly in 2000/01 to 341 yen. To date Japan has not imported any over-quota rice from any source. Japan's import quota will remain at the 2000 level of 7.2 percent of base period use until another agreement is reached. Even with Japan's recent tariffication, total quota imports for both countries will be nearly 800,000 tons in 2000, or almost one-half of global japonica trade.

The United States—First, under the URAA the United States agreed to lower its rice tariffs—already quite low—by 36 percent in six equal installments by 2000 starting in 1995. The United States also agreed to establish quantity and budgetary ceilings for export subsidies and reduce these 21 percent and 36 percent by 2000. The United States does not currently provide direct export subsidies for rice exports. The United States continues to include rice in international food aid shipments. The Export Enhancement Program (EEP) provided targeted export assistance in former U.S. markets, but there have been no EEP sales for rice in 4 years

The Uruguay Round was the first time the GATT disciplined domestic support programs. Under the URAA, countries were required to reduce outlays, termed aggregate measures of support (AMS), on many domestic policies that provide producers with direct economic incentives to increase production. In discussions leading up to the URAA, domestic policies were segregated into categories to indicate the relative acceptability of the policies. In the final agreement, domestic policies deemed to have the largest effect on production and trade ("Amber Box" policies) are to be disciplined by requiring limitations or gradual reductions in aggregate support levels. Policies presumed to have the least effect on production and trade ("Green Box" policies) are exempt from disciplines. As a developed country, the United States is required to reduce its AMS for Amber box category of domestic support by 20 percent over 6 years starting in 1995.

The 1996 Farm Act, enacted more than a year after the UR was concluded, contained important policy reforms that reduced trade-distorting domestic support policies. Under the 1996 Farm Act, producer support in the United States is provided in the form of direct payments that are not tied to current planting levels, thus fitting in the URAA "Green Box" category where policies are exempt from URAA reduction commitments. Since rice is a program crop, participating rice producers are eligible for production flexibility contract payments (PFCs). In 1997/98, the PFC payment rate was $2.71 per cwt, compared with a market price of $9.70. Participating producers received payments on 85 percent of their contract acreage based on their program yield.

In addition to annual PFC payments, a marketing loan program is provided to U.S. rice producers. Producer support under the marketing loan program includes both loan deficiency payments and marketing loan gains. Payment rates are based on the difference between the announced world price and the established loan rate, with payments resulting when the announced world rice price is less than the loan rate. The marketing loan program fits the URAA "Amber Box" category. Under the URAA, developed countries agreed to reduce aggregate outlays for all commodities-not rice specifically—in this category of support 20 percent by 2000/01. Thus, no reductions for rice are necessarily required to meet the 20 percent AMS commitment.

There were no marketing loan payments from 1996/97 through 1997/98, and payments were negligible in 1998/99. However, low world prices are responsible for sizable marketing loan payments in 1999/2000.

Because of economic hardships stemming from falling farm incomes and weather-related disasters, the U.S. Congress provided supplemental emergency assistance payments to recipients of PFC payments in both 1998/99 and 1999/2000. These emergency payments increased payments to rice producers by 50 percent in 1998 and doubled the total level of direct payments in 1999.

The European Union—The EU's URAA commitments were similar to the U.S. commitments. The EU converted its variable import levies to fixed tariffs and agreed to lower these tariffs 36 percent by 2000. The base period chosen for establishing these fixed tariffs was the average level during 1986-88. Tariffs were assigned by categories—paddy, husked, semi/wholly milled, and brokens. The EU also agreed to bind the difference between the import price and its internal support price so that the level of protection will not increase if the EU reduces its internal support price.

Prior to the completion of the URAA, the EU-U.S. Blair House Accord in 1992 altered the way import duties for cereals and rice are applied. Alterations apply to milled and husked imports, not to paddy, which remains fixed at levels set originally in URAA. The other duties are variable based on the difference between the intervention price and the representative import price. The representative import price and derived import duty are set every 2 weeks for each category. After complaints from importers about the representative price, the EU adopted a cumulative recovery system for any importers who believed they paid too much based on the reference price. This program was not judged successful and was terminated on December 31, 1998.

A major reason EU rice imports have not been greatly affected by WTO commitments is that a large share of EU rice imports result from import concessions. Egypt can ship 32,000 tons at a reduced duty level of 25 percent. African, Caribbean, and Pacific (ACP) countries can export long grain rice to the EU at a reduced tariff and Overseas Countries and Territories (OCT), primarily the Dutch Antilles, can export to the EU duty free. Combined ACP and OCT quotas total 160,000 tons annually. Excluding inter-EU trade, the EU annually imports more than 500,000 tons of rice (milled basis), with the United States supplying more than 300,000 tons, mostly brown rice.

Although the URAA included provisions for countries that previously protected their markets through quotas or other non-tariff barriers to ensure minimum market access, this provision had no significance to the EU because its rice imports have historically been well in excess of 5 percent of domestic consumption.

As part of the compensation package to third countries for Austria, Finland, and Sweden joining the EU, additional duty-free and reduced duty concessions were granted for rice. These included 63,000 tons of milled rice at zero duty, 20,000 tons of brown rice at a reduced tariff of 88 ECUs per ton, and 80,000 tons of broken rice at a tariff equal to the normal brokens tariff less 28 ECUs per ton. The U.S. allocation was 38,721 tons for milled rice, 7,642 tons for brown rice, and 7,281 tons for brokens.

The EU also agreed to reduce its expenditures on export subsidies by 36 percent and volume by 21 percent over the next 6 years. Rice has historically been a heavily protected commodity in the EU. EU prices are substantially above world trading levels. Most of the EU's rice exports are shipped as food aid, under preferential trading arrangements, or with export subsidies. Excluding trade within the EU, the EU typically exports more than 200,000 tons of rice annually, mostly to Mediterranean countries, Eastern Europe, and Russia.

Intervention buying currently provides the primary means of producer price support in the EU. From April through July, the EU purchases all rice offered by member country producers assuming it meets quality specifications. The purchases provide an attractive marketing option when world prices are low. Intervention prices are adjusted during the year. This form of support falls under the "Amber Box" category. The URAA eliminated threshold prices that had kept producer prices high since the origin of the Common Agricultural Policy in 1967.

From 1970 through the mid-1990s very little intervention buying occurred as the EU relied heavily on export subsidies to move surplus production into export markets. In 1997 intervention purchases became large as world prices dropped, substantially making intervention sales an attractive alternative for EU producers. The EU entered the 1999/2000 market year (September to August) with extremely large intervention stocks, mostly Italian japonica rice.

Prior to the URAA, the EU undertook policy changes that relied less on market price support and more on direct payments. As part of the EU's CAP reform started in 1992 for cereals, reforms for rice began in 1997/98 and follow the pattern established for cereals. The reforms call for compensatory area payments in return for cuts in intervention support prices for paddy rice of 15 percent. They are being implemented as a 5-percent cut a year over a 3-year period starting in 1997/98. As total payments to producers are not expected to decline much, little impact on plantings is expected.

There is a ceiling on the area for which the compensatory payments are paid. The ceiling is based on the annual average rice plantings in each country from 1993/94 to 1995/96 (1992/93 to 1994/95 for Spain and Portugal). If rice plantings exceed the EU maximum guaranteed area, penalties are applied. Compensatory payments fall under the "Blue box" WTO policy category. Payments in this category are temporarily exempt from reductions if the amount of payments is based on fixed area and yields. The Blue box was intended to be a temporary measure.

Developing Countries—Several URAA commitments pertained to *developing countries*. Similar to Japan and South Korea, the Philippines invoked a "rice clause" that guaranteed a tariff-rate quota rising to 238,940 tons by the end of the implementation period. However, to date imports have far exceeded this level every year since 1995 and are projected to remain well above this quota for at least the next decade. Indonesia negotiated a separate agreement on rice imports, guaranteeing 70,000 tons of imports annually. Like the Philippines, Indonesia's rice imports have far exceeded this level every year this decade and are projected to exceed 2 million tons annually for the next decade.

Under the URAA, all member countries were required to cap trade-distorting support at 1986-88 levels, and make reductions off this base. Developed countries were required to

reduce their AMS by 20 percent over 6 years and developing countries to reduce their AMS by 13 percent over 10 years.

This requirement has not had much impact on rice production in developing Asian countries-which account for the bulk of global rice production—for two reasons. First, the URAA allowed developing countries "special and differential" exemptions for certain input and investment subsidies, which cover most programs used to support rice production in these countries. Domestic support in these countries is typically provided by fertilizer subsidies, provisions for certified seeds and other inputs at below-market prices, and sometimes credit assistance. Second, trade-distorting support measures such as price supports are not subject to reduction if in total they do not exceed 10 percent of the value of production-the *de minimis* provision for developing countries. Few developing countries have domestic reduction commitments.

In addition, developing countries committed themselves to not using export subsidies. However, there is very little use of export subsidies by Asian or Latin American rice exporting countries. In fact, except for small amounts exported by the EU, little rice is exported under subsidies by any country. The bulk of government involvement in the Asian rice market is through state control of trade, often in the form of state trading enterprises. This is especially true for several major Asian rice importers and exporters.

Sanitary and Phytosanitary Measures—The Uruguay Round Sanitary and Phytosanitary (SPS) Agreement imposed new rules and procedures on measures countries may take to protect human, animal, or plant life or health. Such regulations can not be used as a pretext for protection. The UR requires SPS measures to be applied in a consistent manner across countries and commodities and does not allow them to be used as an arbitrary barrier to trade. This Agreement could increase the transparency of countries' SPS regulations and provides an improved means for settling SPS-related trade disputes.

Currently, Mexico and Central America effectively ban Asian rice imports through SPS measures. This gives the United States a major trade advantage in this important region. However, the application of unsound phytosanitary requirements has at times been a problem for U.S. rice exports to Latin America, in particular to Mexico and Central America. Phytosanitary requirements, often motivated to protect domestic industry, have periodically stopped U.S. shipments, resulting in losses due to demurrage charges and canceled sales.

Most recently, in November 1999 Costa Rica prevented the unloading of U.S. rough rice based on alleged phytosanitary requirements during the domestic harvest period. In the past, Honduras, El Salvador, Panama, the Dominican Republic, and Mexico have applied arbitrary phytosanitary restrictions during local harvest to protect domestic producers.

Dispute Resolution—Compared to GATT procedures, the Uruguay Round improved the multilateral dispute resolution process by limiting the ability of a single country to block the formation of a dispute resolution panel or veto an adverse ruling. This procedural change occurred nearly 50 years after the founding of the GATT.

The WTO's 2000 Round To Examine Unresolved Issues

While the URAA increased international rice trade, several issues critical to rice remain unresolved. Important issues in the upcoming WTO Round pertaining to the U.S. rice industry are likely to be those remaining from the last round, such as increased market access, continued reduction in domestic support and export subsidies. Developments in new areas—such as creating tighter discipline on state trading enterprises (STEs), disciplining use of export credit guarantees, reducing technical barriers to trade, and establishing uniform world trading rules and regulations for biotechnology products could also be important to the U.S. rice sector.

Market Access—Several major rice markets are still highly protected, most importantly Japan and South Korea. Without a new agreement, Japan's tariff-rate quota (TRQ) will remain at 7.2 percent of base period (1986-88) use, or 682,000 tons, after 2000. Recent tariffication by Japan has slowed the increase in minimum access imports and placed a prohibitively high tariff on above-quota imports. The URAA allowed Japan to replace an outright ban on over quota imports with an extremely high tariff. The tariff level is based on the difference between the domestic price—premium quality japonica rice—and the price of imported rice during the base (1986-88) period. At that time Japan's rice imports consisted of small amounts of low quality indica for processing. The level of both Japan's tariff and TRQ will be major issues in the upcoming round.

South Korea's imports are scheduled to continue expanding until 2004 but will still be only 4 percent of base period (1986-88) use or a little more than 185,000 tons (milled basis). What will happen with South Korea's TRQ after 2004 is a major policy issue.

Accession of China and Taiwan—Accession of China and Taiwan into the WTO would have a significant impact on world rice trade. On November 15 China and the United States signed a bilateral agreement that would permit the United States to endorse China's accession to the WTO. This agreement represents a crucial step in China's WTO accession process.

Several important steps remain. China must still conclude bilateral agreements with a number of other WTO members,

including the EU, Canada, Argentina, and Thailand. Multilateral negotiations on China's accession protocol must also be completed. China must then complete its own domestic legislation and procedures for accession.

In the agreement, China agreed to cut tariffs on all agricultural commodities to an average of 17 percent. China will also establish large and increasing tariff-rate quotas for wheat, corn, rice, and cotton with a substantial share allotted to private traders. China also agreed to prohibit the use of export subsidies for agricultural exports, including rice.

China produces and consumes both indica and japonica rice. Area is shifting from lower quality indica—mostly grown in the south—to higher quality japonica. The bulk of the japonica is produced in the northeast. It is likely that China would opt to continue exporting high-quality japonica to Japan, a lucrative market.

Policy changes this spring indicate China is willing to adopt more market-oriented policies that would result in declining rice production, especially for lower quality early rice grown in the south. If China joined the WTO, it would have to partially open its rice market to imports. This could have a major impact on the world rice market given China's massive consumption, nearly 40 percent of total global rice consumption.

In April 1999, China committed to a 2.66-million-ton TRQ for rice in 2000, rising to 5.32 million in 2004. Half the quota is for japonica (medium/short grain), the remainder is for indica (typically long grain). The TRQ is not a purchase commitment, but an opportunity for market access conducted in a fair and transparent manner. China committed to reserve 50 percent of short and medium grain imports and 10 percent of the long grain imports for the private traders. Currently, all grain trade in China is controlled by the government.

Imports of this magnitude would have a massive impact on world trade volumes and international prices. However, it is unlikely that China would import the full TRQ. Also, it is unlikely China would import very much japonica rice, as only about 2 million tons are traded worldwide. The United States is not likely to supply any substantial amounts of rice to China as U.S. prices are well above Asian levels. However, certain niche markets—primarily for higher income urban consumers—could be supplied by U.S. producers. In addition, any overall increase in global trade would likely benefit the U.S. rice industry to some degree.

If Taiwan joins the WTO, it would be required to open its market to an identical share of base use as required of Japan. For 2000, this amount equates to about 144,720 tons on a brown rice basis. Taiwan consumes mostly high quality japonica rice. The United States would be a likely supplier of much of Taiwan's rice imports.

State Trading Enterprises—The upcoming WTO Round will look to further discipline the activities of STEs. Of major concern is the lack of transparency in pricing by STEs and the possibility that some countries are using STE to circumvent URAA rules. About one-half of global rice exports is by STEs and STEs account for one-third of rice imports. STEs account for all or the bulk of rice trade for several current WTO members—Indonesia, Malaysia, Australia, the Philippines, and South Korea. In addition, several countries seeking WTO membership—China, Taiwan, Vietnam, and Russia—use STEs to conduct rice trade.

Biotechnology (transgenic rice)—The upcoming WTO will likely tackle issues associated with trade in biotechnology products. Differences among countries' regulations regarding biotechnology pose significant potential barriers to trade in these varieties. Trade in genetically improved varieties could be facilitated through mutual recognition of countries' regulations, harmonization of existing regulations between countries, and by the negotiation of an international standard. However, trade could be impeded by harmonizing to a stricter standard.

Japan, the EU, and South Korea-all rice importing countries—are drafting or planning to establish regulations on genetically modified commodities. Both Japan and the EU are major markets for U.S. rice exports.

Although transgenic rice has yet to be commercially produced in the United States, transgenic varieties are expected to be commercially available to U.S. producers early in the next century. Development of transgenic rice in the United States is currently aimed at improving agronomic characteristics, primarily herbicide resistance. Other products in development include rice varieties tolerant to cold, heat, and drought stress.

In addition, rice breeders are using biotechnology to improve the nutritional quality of rice as demonstrated by the recent international development of a rice variety with increased levels of iron and vitamin A. This development was led by researchers at the Swiss Federal Institute of Technology and was financed primarily from the New York-based Rockefeller Foundation with additional funding from the European Commission's agricultural research program. This rice could overcome a variety of food deficiencies that are particularly common in developing countries.

List of Appendix Tables

Appendix table 1--Supply, disappearance, and price, by type of rice, U.S. (rough equivalent of rough and milled rice) 1/

Item	Unit	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99 2/	1999/00 3/
Total rice:									
Area planted	Mil. acres	3.18	2.92	3.35	3.12	2.82	3.13	3.35	3.60
Area harvested	"	3.13	2.83	3.32	3.09	2.80	3.10	3.32	3.57
Yield	Pounds/acre	5,736	5,510	5,964	5,621	6,120	5,897	5,669	5,929
Beginning stocks 4/	Mil. cwt	27.41	39.44	25.77	31.28	25.03	27.24	27.89	21.97
Production	"	179.66	156.11	197.78	173.87	171.60	182.99	188.05	211.71
Imports	"	6.09	6.91	7.54	7.68	10.49	9.21	10.53	10.75
Total supply 4/	"	213.15	202.46	231.08	212.82	207.13	219.44	226.47	244.43
Domestic & residual 5/	"	96.69	101.44	100.48	105.62	102.73	105.21	120.86	113.04
Exports	"	77.02	75.26	99.33	82.17	77.16	86.34	83.64	82.00
Total use	"	173.71	176.70	199.80	187.79	179.89	191.55	204.50	195.04
Ending stocks 6/	"	39.44	25.77	31.28	25.03	27.24	27.89	21.97	49.40
CCC	"	0.10	0.00	0.10	0.00	0.00	0.00	0.00	NA
Free	"	39.34	25.77	31.18	25.03	27.24	27.89	21.97	NA
Average market price 7/	$/cwt	5.89	7.98	6.78	9.15	9.96	9.70	8.83	5.50-6.00
Long grain:									
Area harvested	Mil. acres	2.37	2.03	2.38	2.31	1.97	2.31	2.61	NA
Yield	Pounds/acre	5,397	5,082	5,609	5,265	5,777	5,391	5,430	NA
Beginning stocks	Mil. cwt	12.99	21.61	15.06	14.41	10.12	14.14	14.51	13.91
Production	"	128.02	103.06	133.45	121.73	113.63	124.49	141.62	152.01
Total supply 8/	"	146.42	130.57	154.99	142.65	133.01	146.63	164.65	175.47
Domestic & residual 5/	"	59.03	59.88	59.57	67.76	62.25	60.73	81.59	73.00
Exports	"	65.78	55.64	81.01	64.78	56.63	71.39	69.14	66.00
Total use	"	124.81	115.51	140.58	132.53	118.88	132.12	150.73	139.00
Ending stocks	"	21.61	15.06	14.41	10.12	14.14	14.51	13.91	36.47
Average market price 7/	$/cwt	5.87	7.93	6.87	9.37	10.60	10.20	NA	NA
Medium/short grain:									
Area harvested	Mil. acres	0.76	0.81	0.94	0.78	0.84	0.79	0.71	NA
Yield	Pounds/acre	6,795	6,590	6,866	6,676	6,926	7,369	6,548	NA
Beginning stocks	Mil. cwt	12.93	15.84	9.98	15.78	14.29	12.13	12.32	6.90
Production	"	51.64	53.05	64.33	52.14	57.97	58.51	46.43	59.71
Total supply 8/	"	64.75	71.16	75.01	69.55	73.14	71.75	60.67	67.81
Domestic & residual 5/	"	37.67	41.56	40.91	37.87	40.48	44.48	39.27	40.04
Exports	"	11.24	19.62	18.32	17.39	20.54	14.95	14.50	16.00
Total use	"	48.90	61.18	59.23	55.26	61.01	59.43	53.77	56.04
Ending stocks	"	15.84	9.98	15.78	14.29	12.13	12.32	6.90	11.77
Average market price 7/	$/cwt	5.91	8.09	6.70	8.82	8.37	8.52	NA	NA

NA = Not available.

Note: Totals might not add because of rounding.

1/ August 1 to July 31 marketing year. 2/ Estimated. 3/ Projected as of November 1999. 4/ Includes broken kernel rice not included in estimates by type. 5/ Residual is the sum of unreported use, processing losses, and estimating errors. 6/ Includes the following quantities of broken kernel rice (type undetermined) not included in estimates of ending stocks by type: 1992/93, 1.99 million cwt; 1993/94, 0.73 million; 1994/95, 1.09 million; 1995/96, 0.63 million; 1996/97, 0.98 million; 1997/98, 1.06 million; 1998/99, 1.15 million; 1999/00, 1.74 million. 7/ Marketing year weighted average price received by farmers. 8/ Includes imports.

Appendix table 2--Rough and milled rice (rough equivalent): Marketing year supply and disappearance, 1962/63-1999/00

Year beginning Aug. 1	Supply				Disappearance							Ending stocks--July 31		
					Domestic use									
	Beginning stocks	Production	Imports	Total	Food	Seed	Brewers	Total	Exports	Residual	Total disappearance	CCC inventory	Free	Total
	Million cwt													
1962/63	5.4	66.0	0.0	71.4	21.5	2.4	4.1	28.0	35.5	0.2	63.7	1.8	5.9	7.7
1963/64	7.7	70.3	0.0	78.0	22.5	2.4	3.8	28.7	41.8	0.0	70.5	1.4	6.1	7.5
1964/65	7.5	73.2	0.5	81.2	24.2	2.5	4.3	31.0	42.5	0.0	73.5	1.1	6.6	7.7
1965/66	7.7	76.3	0.6	84.6	23.5	2.7	4.7	30.9	43.3	2.2	76.4	0.6	7.6	8.2
1966/67	8.2	85.0	0.1	93.3	23.9	2.7	5.3	32.0	51.6	1.2	84.8	0.2	8.3	8.5
1967/68	8.5	89.4	0.0	97.9	25.0	3.2	5.4	33.6	56.9	0.6	91.1	0.1	6.7	6.8
1968/69	6.8	104.1	0.0	110.9	27.0	2.9	5.8	35.7	56.1	2.9	94.7	5.5	10.7	16.2
1969/70	16.2	91.9	1.2	109.3	23.5	2.5	7.1	33.1	56.9	1.9	91.9	6.4	10.0	16.4
1970/71	16.4	83.8	1.5	101.7	25.1	2.5	6.8	34.4	46.5	2.2	83.1	9.5	9.1	18.6
1971/72	18.6	85.8	1.1	105.5	25.5	2.5	7.4	35.4	56.9	1.8	94.1	2.7	8.7	11.4
1972/73	11.4	85.4	0.6	97.4	25.1	3.0	7.7	35.8	54.0	2.5	92.3	0.1	5.0	5.1
1973/74	5.1	92.8	0.2	98.1	26.1	3.6	8.1	37.8	49.7	2.7	90.2	0.0	7.8	7.8
1974/75	7.8	112.4	0.1	120.3	28.6	4.0	8.4	41.0	69.5	2.7	113.2	0.0	7.1	7.1
1975/76	7.1	128.4	0.0	135.5	27.7	3.5	9.1	40.3	56.5	1.8	98.6	18.7	18.2	36.9
1976/77	36.9	115.6	0.1	152.6	29.2	3.2	10.3	42.7	65.6	3.8	112.1	18.6	21.9	40.5
1877/78	40.5	99.2	0.1	139.8	23.5	4.3	9.9	37.7	72.8	1.9	112.4	10.8	16.6	27.4
1978/79	27.4	133.2	0.1	160.7	33.7	4.3	11.2	49.2	75.7	4.2	129.1	8.3	23.2	31.6
1979/80	31.6	131.9	0.1	163.6	33.2	4.8	11.2	49.2	82.6	6.1	137.9	1.7	24.0	25.7
1980/81	25.7	146.2	0.2	172.1	38.4	5.1	11.0	54.5	91.4	9.7	155.6	0.0	16.5	16.5
1981/82	16.5	182.7	0.4	199.6	42.5	4.4	12.7	59.6	82.0	9.0	150.6	17.5	31.5	49.0
1982/83	49.0	153.6	0.7	203.3	37.3	3.2	13.5	54.0	68.9	8.9	131.8	22.3	49.2	71.5
1983/84	71.5	99.7	0.9	172.1	33.2	3.3	12.8	49.3	70.3	5.6	125.2	25.0	21.9	46.9
1984/85	46.9	138.8	1.6	187.3	35.8	2.8	13.9	52.5	62.1	8.0	122.6	44.3	20.4	64.7
1985/86	64.7	134.9	2.2	201.8	45.6	2.6	14.1	62.3	58.7	3.5	124.5	43.6	33.7	77.3
1986/87	77.3	133.4	2.6	213.3	52.3	2.6	14.8	69.7	84.2	7.0	160.9	9.1	42.3	51.4
1987/88	51.4	129.6	3.0	184.0	54.9	3.6	15.4	73.9	72.2	6.5	152.6	0.0	31.4	31.4
1988/89	31.4	159.9	3.8	195.1	57.4	3.4	15.6	76.4	85.9	6.0	168.3	0.0	26.7	26.7
1989/90	26.7	154.5	4.4	185.6	60.1	3.3	15.4	78.8	77.1	3.0	158.9	0.0	26.3	26.3
1990/91	26.3	156.1	4.8	187.2	63.8	3.6	15.3	82.7	70.9	9.0	162.6	0.1	24.5	24.6
1991/92	24.6	159.4	5.3	189.3	67.1	3.9	15.4	86.4	66.4	9.0	161.8	0.4	27.0	27.4
1992/93	27.4	179.7	6.1	213.2	69.0	3.8	15.1	87.9	77.0	8.8	173.7	0.1	39.3	39.4
1993/94	39.4	156.1	6.9	202.5	71.2	4.3	14.3	89.8	75.3	11.6	176.7	0.0	25.8	25.8
1994/95	25.8	197.8	7.5	231.1	74.0	3.9	14.5	92.3	99.3	8.2	199.8	0.1	31.2	31.3
1995/96	31.3	173.9	7.7	212.8	78.0	3.5	15.6	97.1	82.2	8.5	187.8	0.0	25.0	25.0
1996/97	25.0	171.6	10.5	207.1	81.0	3.9	15.8	100.7	77.2	2.0	179.9	0.0	27.2	27.2
1997/98	27.2	183.0	9.2	219.4	84.0	4.1	16.0	104.1	86.3	1.1	191.5	0.0	27.9	27.9
1998/99 1/	27.9	188.1	10.5	226.5	84.0	4.4	15.4	103.9	83.6	17.0	204.5	0.0	22.0	22.0
1999/00 2/	22.0	211.7	10.8	244.4	87.0	4.1	15.4	106.5	82.0	6.5	195.0	N/A	N/A	49.4

N/A = Not available.

1/ Estimated. 2/ Projected as of November 1999.

Appendix table 3--Long grain rough and milled rice (rough equivalent): Marketing year supply and disappearance, 1982/83-1999/00

Year beginning August 1	Supply 1/ Beginning stocks	Production	Total 2/	Disappearance Domestic and residual	Exports	Total	Ending stocks 1/ Total
				Million cwt			
1982/83	17.6	93.4	111.0	38.7	47.0	85.7	25.8
1983/84	25.8	64.3	90.7	29.5	44.8	74.3	16.4
1984/85	16.4	96.0	113.3	34.1	42.0	76.1	37.7
1985/86	37.7	100.4	140.1	48.8	42.0	90.8	49.3
1986/87	49.3	96.8	148.6	51.3	69.9	121.2	27.4
1987/88	27.4	89.0	119.4	49.8	50.5	100.3	19.1
1988/89	19.1	119.4	142.1	55.6	71.2	126.8	15.4
1989/90	15.4	109.2	128.6	54.5	60.8	115.3	13.2
1990/91	13.2	107.8	125.3	57.8	56.0	113.8	11.5
1991/92	11.5	109.1	125.4	61.4	51.0	112.4	13.0
1992/93	13.0	128.0	146.4	59.0	65.8	124.8	21.6
1993/94	21.6	103.1	130.6	59.9	55.6	115.5	15.1
1994/95	15.1	133.4	155.0	59.6	81.0	140.6	14.4
1995/96	14.4	121.7	142.6	67.8	64.8	132.5	10.1
1996/97	10.1	113.6	133.0	62.2	56.6	118.9	14.1
1997/98	14.1	124.5	146.6	60.7	71.4	132.1	14.5
1998/99 3/	14.5	141.6	164.6	81.6	69.1	150.7	13.9
1999/00 4/	13.9	152.0	175.5	73.0	66.0	139.0	36.5

1/ Stocks and total supply by grain size do not sum to total rice stocks or supply due to the exclusion of broken kernel rice in estimates of stocks by grain type. 2/ Includes imports. 3/ Estimated. 4/ Projected as of November 1999.

Appendix table 4--Medium/short grain rough and milled rice (rough equivalent): Marketing year supply and disappearance, 1982/83-1999/00

Year beginning August 1	Supply 1/ Beginning stocks	Production	Total 2/	Disappearance Domestic and residual	Exports	Total	Ending stocks 1/ Total
				Million cwt			
1982/83	30.2	60.2	90.6	24.4	21.9	46.1	44.7
1983/84	44.7	35.4	80.2	26.0	25.4	51.4	28.8
1984/85	28.8	42.8	71.8	26.0	20.1	46.1	25.7
1985/86	25.7	34.5	60.4	17.5	16.7	34.2	26.2
1986/87	26.2	36.6	62.9	27.5	14.3	41.8	21.1
1987/88	21.1	40.6	61.7	29.2	21.7	50.9	10.8
1988/89	10.8	40.5	51.4	27.8	14.7	42.5	9.0
1989/90	9.0	45.3	54.7	26.7	16.4	43.1	11.6
1990/91	11.6	48.3	60.5	33.8	15.0	48.8	11.7
1991/92	11.7	50.2	62.4	34.1	15.4	49.5	12.9
1992/93	12.9	51.6	64.7	37.7	11.2	48.9	15.8
1993/94	15.8	53.0	71.2	41.6	19.6	61.2	10.0
1994/95	10.0	64.3	75.0	40.9	18.3	59.2	15.8
1995/96	15.8	52.1	69.5	37.9	17.4	55.3	14.3
1996/97	14.3	58.0	73.1	40.5	20.5	61.0	12.1
1997/98	12.1	58.5	71.7	44.5	14.9	59.4	12.3
1998/99 3/	12.3	46.4	60.7	39.3	14.5	53.8	6.9
1999/00 4/	6.9	59.7	67.8	40.0	16.0	56.0	11.8

1/ Stocks and total supply by grain size do not sum to total rice stocks or supply due to the exclusion of broken kernel rice in estimates of stocks by grain type. 2/ Includes imports. 3/ Estimated. 4/ Projected as of November 1999.

Appendix table 5--Rough rice milled, total milled produced, and milling yields, United States

Year beginning August 1	Rough milled	Total milled produced 1/	Total milling yields	Total heads produced 1/	Head rice milling
	---1,000 cwt---		Lbs./cwt	1,000 cwt	Lbs./cwt
1978/79	117,961	83,427	70.7	68,749	58.3
1979/80	123,993	89,071	71.8	78,327	63.2
1980/81	141,016	102,278	72.5	89,513	63.5
1981/82	131,841	95,129	72.2	82,022	62.2
1982/83	118,726	84,517	71.2	73,713	62.1
1983/84	111,151	79,012	71.1	68,237	61.4
1984/85	107,195	74,580	69.6	64,063	59.8
1985/86	115,542	81,808	70.8	69,347	60.0
1986/87	140,804	100,257	71.2	83,760	59.5
1987/88	130,818	91,481	69.9	76,863	58.8
1988/89	145,639	104,119	71.5	86,820	59.6
1989/90	136,994	99,453	72.6	85,188	62.2
1990/91	132,523	95,431	72.0	79,993	60.4
1991/92	129,796	91,521	70.5	76,685	59.1
1992/93	139,553	97,707	70.0	82,182	58.9
1993/94	144,602	107,564	74.4	92,618	64.0
1994/95	161,040	119,261	74.1	102,374	63.6
1995/96	146,428	104,488	71.4	91,003	62.2
1996/97	141,345	99,026	70.1	86,776	61.4
1997/98 2/	140,095	97,036	69.3	84,528	60.2
1998/99 3/	141,640	98,273	69.4	85,216	60.2

1/ Includes brown rice. 2/ Revised. 3/ Preliminary. Data for 1998/99 incomplete.
Source: Rice Millers' Association.

Appendix table 6--Rice milling yields, 1974/75-1998/99 1/

Year beginning August 1	South 2/	California	United States
		Lbs/cwt	
1974/75	71.15	74.60	71.92
1975/76	69.31	73.88	70.38
1976/77	71.95	72.80	72.11
1977/78	69.28	69.56	69.33
1978/79	70.50	71.69	70.72
1979/80	70.88	74.43	71.80
1980/81	70.78	77.61	72.50
1981/82	71.56	74.99	72.20
1982/83	71.07	69.21	71.20
1983/84	71.07	71.62	71.10
1984/85	70.50	66.90	69.57
1985/86	70.44	71.90	70.80
1986/87	71.71	65.38	71.20
1987/88	70.96	67.37	69.93
1988/89	72.07	69.40	71.49
1989/90	72.66	72.36	72.60
1990/91	72.38	70.59	72.01
1991/92	70.80	69.53	70.51
1992/93	70.53	68.17	70.01
1993/94	74.78	73.31	74.39
1994/95	75.24	69.75	74.06
1995/96	71.53	71.90	71.36
1996/97	70.45	69.61	70.06
1997/98 3/	69.80	67.76	69.27
1998/99 4/	69.61	68.63	69.41

1/ Milled rice--head rice and brokens--produced per 100 pounds of rough rice milled. 2/ Arkansas, Louisiana, Mississippi, Missouri, and Texas.
3/ Revised. 4/ Preliminary.
Source: Rice Millers' Association.

Appendix table 7--Rice stocks: Rough and milled 1/

Date	Rough					Milled			
	On farms or in farm warehouses	At mills and in attached warehouses	In warehouses (not attached to mills)	In ports or in transit	Total all positions	At mills and in attached warehouses	In warehouses (not attached to mills)	In ports or in transit	Total all positions
					1,000 cwt				
December 1:									
1986	36,264	18,739	90,153	384	145,540	4,578	461	650	5,689
1987	29,789	13,648	71,902	81	115,420	4,841	617	1,232	6,690
1988	39,581	12,741	79,245	121	131,688	4,813	550	915	6,278
1989	40,040	10,084	66,166	83	116,373	4,254	782	720	5,756
1990	37,662	9,548	65,905	52	113,167	4,046	605	1,180	5,831
1991	37,249	9,630	66,857	54	113,790	3,564	495	351	4,410
1992	39,966	14,434	76,887	196	131,483	3,580	855	1,882	6,317
1993	24,164	13,624	70,789	668	109,245	3,849	192	840	4,881
1994	41,223	15,682	83,471	693	141,069	3,290	511	1,044	4,845
1995	32,936	12,561	74,951	883	121,331	4,368	331	1,010	5,709
1996	32,719	13,228	72,321	801	119,069	4,056	280	1,315	5,651
1997	33,470	13,505	76,302	1,066	124,343	4,144	101	1,437	5,682
1998	35,584	10,631	74,532	231	120,978	3,861	128	1,427	5,416
April 1:									
1981	5,977	15,078	28,673	64	49,792	3,499	1,099	3,214	7,812
1982	26,807	21,289	41,773	411	90,280	4,371	725	1,689	6,785
1983	23,778	22,307	62,649	299	109,033	3,295	492	3,165	6,952
1984	15,802	17,432	46,515	17	79,766	3,838	464	2,999	7,301
1985	18,709	16,438	60,188	707	96,042	3,538	481	2,101	6,120
1986	22,232	19,371	73,700	914	116,217	2,818	425	208	3,451
March 1:									
1987	19,561	15,962	70,780	483	106,786	3,881	561	117	4,559
1988	10,104	28,905	36,464	125	75,598	5,680	1,233	1,059	7,972
1989	27,266	12,704	49,439	641	90,050	5,589	189	1,502	7,280
1990	15,965	10,390	51,381	218	77,954	5,259	327	410	5,996
1991	19,345	9,404	43,554	124	72,427	4,002	408	858	5,268
1992	20,658	8,283	46,631	211	75,783	3,888	837	952	5,677
1993	22,397	11,900	57,197	187	91,681	3,474	643	1,075	5,192
1994	11,703	15,056	52,697	147	79,603	4,232	1,010	563	5,805
1995	23,239	12,793	59,271	622	95,925	4,078	349	1,192	5,619
1996	20,520	11,102	53,283	941	85,846	3,072	148	479	3,699
1997	16,003	13,112	49,519	1,510	80,144	3,590	381	640	4,611
1998	21,205	11,736	54,449	661	88,051	4,453	344	1,082	5,879
1999 2/	22,290	9,745	47,409	806	80,250	3,700	172	472	4,344
August 1:									
1981	208	5,417	4,206	9	9,840	2,744	446	1,665	4,855
1982	4,453	12,544	23,906	484	41,387	3,191	409	1,877	5,477
1983	6,032	11,190	45,899	36	63,157	2,843	223	2,830	5,896
1984	1,250	11,017	27,425	14	39,706	3,976	50	1,095	5,121
1985	697	13,398	44,402	653	59,150	3,023	304	515	3,842
1986	2,031	15,432	52,476	1,008	70,947	3,033	398	1,099	4,530
1987	984	9,986	30,718	115	41,803	5,044	632	1,168	6,844
1988	1,242	7,714	14,789	3	23,748	4,461	189	679	5,329
1989	1,176	7,296	10,084	31	18,587	4,178	752	902	5,832
1990	599	5,370	13,133	51	19,153	3,650	548	998	5,196
1991	852	5,149	12,636	58	18,695	3,569	217	457	4,243
1992	1,109	6,166	13,179	77	20,531	3,833	486	529	4,848
1993	1,708	7,055	21,786	35	30,584	4,179	658	1,365	6,202
1994	517	5,601	14,674	115	20,907	2,710	188	697	3,595
1995	862	6,578	15,279	45	22,764	4,225	1,028	1,055	6,308
1996	486	5,542	13,818	125	19,971	3,296	269	49	3,614
1997	428	7,256	13,647	462	21,793	3,269	474	76	3,819
1998	1,136	6,401	13,287	167	20,991	3,598	329	868	4,795
1999 2/	1,560	5,470	9,432	118	16,580	3,332	103	444	3,879

1/ Does not include stocks located in areas outside the major rice producing States of Arkansas, California, Louisiana, Mississippi, Missouri, and Texas. 2/ Preliminary.

Appendix table 8--State and U.S. rice production by class, 1986-99

	1986	1987	1988	1989	1990	1991	1992
				1,000 cwt			
Long grain:							
Arkansas	49,462	45,259	57,447	57,458	53,034	58,328	66,912
California	1,520	2,592	4,200	2,250	1,314	1,168	1,200
Louisiana	14,061	12,079	17,538	13,128	14,805	12,500	19,278
Mississippi	10,692	10,098	13,275	13,395	14,250	12,320	15,675
Missouri	3,335	3,420	4,080	4,056	3,713	4,641	5,328
Texas	17,703	15,547	22,824	18,874	20,690	20,180	19,622
United States	96,773	88,995	119,364	109,161	107,806	109,137	128,015
Medium grain:							
Arkansas	4,544	7,656	7,236	6,322	6,912	8,392	8,940
California	21,917	22,496	22,050	26,315	28,215	28,399	31,342
Louisiana	5,319	7,031	6,542	8,360	11,664	12,235	9,568
Mississippi	1/	1/	505	1/	1/	1/	1/
Missouri	99	144	102	52	47	51	48
Texas	360	324	456	392	490	400	735
United States	32,239	37,651	36,891	41,441	47,328	49,477	50,633
Short grain:							
Arkansas	54	110	52	60	54	60	62
California	4,290	2,847	3,590	3,825	900	693	948
United States	4,344	2,957	3,642	3,885	954	753	1,010
Total grains:							
Arkansas	54,060	53,025	64,735	63,840	60,000	66,780	75,914
California	27,727	27,935	29,840	32,390	30,429	30,260	33,490
Louisiana	19,380	19,110	24,080	21,488	26,469	24,735	28,846
Mississippi	10,692	10,098	13,780	13,395	14,250	12,320	15,675
Missouri	3,434	3,564	4,182	4,108	3,760	4,692	5,376
Texas	18,063	15,871	23,280	19,266	21,180	20,580	20,357
United States	133,356	129,603	159,897	154,487	156,088	159,367	179,658

State	1993	1994	1995	1996	1997	1998	1999 2/ 3/
				1,000 cwt			
Long grain:							
Arkansas	53,928	68,160	61,218	55,055	65,192	75,940	NA
California	1,145	567	600	360	693	537	NA
Louisiana	14,648	19,413	21,022	22,687	24,731	26,727	NA
Mississippi	12,985	18,467	15,552	12,480	13,804	15,544	NA
Missouri	4,557	6,396	5,936	5,162	6,095	7,280	NA
Texas	15,801	20,442	17,402	17,885	13,970	15,596	NA
United States	103,064	133,445	121,730	113,629	124,485	141,624	152,008
Medium grain:							
Arkansas	8,007	12,666	11,682	16,770	13,908	12,400	NA
California	34,112	39,827	33,972	36,150	40,557	30,267	NA
Louisiana	9,460	10,035	5,187	3,290	2,250	1,380	NA
Mississippi	1/	1/	1/	1/	1/	1/	NA
Missouri	1/	52	1/	111	106	156	NA
Texas	294	810	400	580	270	250	NA
United States	51,873	63,390	51,241	56,901	57,091	44,453	55,945
Short grain:							
Arkansas	159	114	120	120	120	80	NA
California	1,014	830	780	949	1,296	1,894	NA
United States	1,173	944	900	1,069	1,416	1,974	3,761
Total grains:							
Arkansas	62,094	80,940	73,020	71,945	79,220	88,420	98,400
California	36,271	41,224	35,352	37,459	42,546	32,698	38,360
Louisiana	24,108	29,448	26,209	25,977	26,981	28,107	31,250
Mississippi	12,985	18,467	15,552	12,480	13,804	15,544	18,411
Missouri	4,557	6,448	5,936	5,273	6,201	7,436	8,976
Texas	16,095	21,252	17,802	18,465	14,240	15,846	16,317
United States	156,110	197,779	173,871	171,599	182,992	188,051	211,714

NA = Not available.

1/ No grain estimates. 2/ Projected as of November 1999. 3/ State production by grain type not available.

Appendix table 9--State and U.S. rice acreage, yield, and production, by class

State	Area harvested			Yield			Production		
	1996	1997	1998	1996	1997	1998	1996	1997	1998
	1,000 acres			Pounds/acre			1,000 cwt		
Long grain:									
Arkansas	910	1,160	1,323	6,050	5,620	5,740	55,055	65,192	75,940
California	5	9	9	7,200	7,700	5,970	360	693	537
Louisiana	463	533	590	4,900	4,640	4,530	22,687	24,731	26,727
Mississippi	208	238	268	6,000	5,800	5,800	12,480	13,804	15,544
Missouri	93	115	140	5,550	5,300	5,200	5,162	6,095	7,280
Texas	288	254	278	6,210	5,500	5,610	17,885	13,970	15,596
United States	1,967	2,309	2,608	5,777	5,391	5,430	113,629	124,485	141,624
Medium grain:									
Arkansas	258	228	200	6,500	6,100	6,200	16,770	13,908	12,400
California	482	491	433	7,500	8,260	6,990	36,150	40,557	30,267
Louisiana	70	50	30	4,700	4,500	4,600	3,290	2,250	1,380
Missouri	2	2	3	5,550	5,300	5,200	111	106	156
Texas	10	5	5	5,800	5,400	5,000	580	270	250
United States	822	776	671	6,922	7,357	6,625	56,901	57,091	44,453
Short grain:									
Arkansas	2	2	2	6,000	6,000	4,000	120	120	80
California	13	16	36	7,300	8,100	5,260	949	1,296	1,894
United States	15	18	38	7,127	7,867	5,195	1,069	1,416	1,974
Total grains:									
Arkansas	1,170	1,390	1,525	6,150	5,700	5,800	71,945	79,220	88,420
California	500	516	478	7,490	8,250	6,840	37,459	42,546	32,698
Louisiana	533	583	620	4,870	4,630	4,530	25,977	26,981	28,107
Mississippi	208	238	268	6,000	5,800	5,800	12,480	13,804	15,544
Missouri	95	117	143	5,550	5,300	5,200	5,273	6,201	7,436
Texas	298	259	283	6,200	5,500	5,600	18,465	14,240	15,846
United States	2,804	3,103	3,317	6,120	5,897	5,669	171,599	182,992	188,051

Sources: Annual Crop Production 1998 Summary, January 1999; National Agricultural Statistics Service, USDA.

Appendix table 10--State and U.S. rice area planted, by class

State	Area planted					
	1989	1990	1991	1992	1993	1994
	1,000 acres					
Long grain:						
Arkansas	1,039	1,110	1,149	1,249	1,115	1,218
California	30	18	16	15	14	7
Louisiana	310	310	290	410	325	400
Mississippi	240	255	225	280	250	315
Missouri	80	91	96	116	105	130
Texas	332	345	337	338	293	340
United States	2,031	2,129	2,113	2,408	2,102	2,410
Medium grain:						
Arkansas	110	129	150	150	162	220
California	335	370	332	369	413	470
Louisiana	195	245	270	220	220	225
Mississippi	1/	1/	1/	1/	1/	1/
Missouri	1	1	1	1	1/	1
Texas	8	10	8	15	7	15
United States	649	755	761	755	802	931
Short grain:						
Arkansas	1	1	1	1	3	2
California	50	12	9	12	13	10
United States	51	13	10	13	16	12
Total grain:						
Arkansas	1,150	1,240	1,300	1,400	1,280	1,440
California	415	400	357	396	440	487
Louisiana	505	555	560	630	545	625
Mississippi	240	255	225	280	250	315
Missouri	81	92	97	117	105	131
Texas	340	355	345	353	300	355
United States	2,731	2,897	2,884	3,176	2,920	3,353

State	Area planted					1999 as share
	1995	1996	1997	1998	1999 2/	of 1998
	1,000 acres					
Long grain:						
Arkansas	1,148	918	1,168	1,333	1,393	105
California	8	5	9	9	5	56
Louisiana	460	465	535	595	605	102
Mississippi	290	210	240	270	300	111
Missouri	119	95	120	142	158	111
Texas	310	290	255	280	264	94
United States	2,335	1,983	2,327	2,629	2,725	104
Medium grain:						
Arkansas	200	260	230	205	255	124
California	449	484	493	435	515	118
Louisiana	115	70	50	30	45	150
Mississippi	1/	1/	1/	1/	1/	1/
Missouri	1/	2	2	3	2	67
Texas	10	10	5	5	6	120
United States	774	826	780	678	823	121
Short grain:						
Arkansas	2	2	2	2	2	100
California	10	13	16	36	50	139
United States	12	15	18	38	52	137
Total grain:						
Arkansas	1,350	1,180	1,400	1,540	1,650	107
California	467	502	518	480	570	119
Louisiana	575	535	585	625	650	104
Mississippi	290	210	240	270	300	111
Missouri	119	97	122	145	160	110
Texas	320	300	260	285	270	95
United States	3,121	2,824	3,125	3,345	3,600	108

1/ No medium grain estimated. 2/ As estimated in the June 1999 Acreage report.

Sources: 1989 to 1999, Crop Production, various issues; and for 1999, June Acreage Report; both from NASS, USDA.

Appendix table 11--U.S. rice acreage, yield, and production, 1958-99

Crop year 1/	Planted	Harvested	Diverted 2/	Yield	Production
		---1,000 acres---			Lbs./acre
1958	1,440	1,415	---	3,164	44,760
1959	1,608	1,586	---	3,382	53,647
1960	1,614	1,595	---	3,423	54,591
1961	1,618	1,589	---	3,411	54,198
1962	1,789	1,773	---	3,726	66,045
1963	1,785	1,771	---	3,968	70,269
1964	1,797	1,786	---	4,098	73,166
1965	1,804	1,793	---	4,255	76,281
1966	1,980	1,967	---	4,322	85,020
1967	1,982	1,970	---	4,537	89,379
1968	2,367	2,353	---	4,425	104,142
1969	2,141	2,128	---	4,318	91,904
1970	1,826	1,815	---	4,618	83,805
1971	1,826	1,818	---	4,718	85,768
1972	1,824	1,818	---	4,700	85,439
1973	2,181	2,170	---	4,274	92,765
1974	2,550	2,531	---	4,440	112,386
1975	2,833	2,818	---	4,558	128,437
1976	2,489	2,480	---	4,663	115,648
1977	2,261	2,249	---	4,412	99,223
1978	2,993	2,970	---	4,484	133,170
1979	2,890	2,869	---	4,599	131,947
1980	3,380	3,312	---	4,413	146,150
1981	3,827	3,792	---	4,819	182,742
1982	3,295	3,262	422	4,710	153,637
1983	2,190	2,169	739	4,598	99,720
1984	2,830	2,802	785	4,954	138,810
1985	2,512	2,492	1,241	5,414	134,913
1986	2,381	2,360	1,479	5,651	133,356
1987	2,356	2,333	1,566	5,555	129,603
1988	2,933	2,900	1,088	5,514	159,897
1989	2,731	2,687	1,184	5,749	154,487
1990	2,897	2,823	1,022	5,529	156,088
1991	2,884	2,781	850	5,731	159,367
1992	3,176	3,132	446	5,736	179,658
1993	2,920	2,833	680	5,510	156,110
1994	3,353	3,316	258	5,964	197,779
1995	3,121	3,093	476	5,621	173,871
1996	2,824	2,804	4/ ---	6,120	171,599
1997	3,125	3,103	4/ ---	5,897	182,992
1998	3,345	3,317	4/ ---	5,669	188,051
1999 3/	3,600	3,571	4/ ---	5,929	211,714

--- = Not applicable.

1/ August 1 to July 31 crop year. 2/ Acreage reduction programs, paid land diversions, and 50/85 and 50/92 programs.

3/ Preliminary. Planting data from June Acreage report. Harvested area, yield, and production data from November WASDE. 4/ Eliminated in 1996 farm act.

Appendix table 12--U.S. and State average rice yields per harvested acre, 1953-99

Crop year	United States	Arkansas	California	Louisiana	Mississippi	Missouri	Texas
				Pounds			
1953	2,447	2,300	2,900	2,075	2,550	NA	2,625
1954	2,517	2,500	2,550	2,350	2,625	2,650	2,675
1955	3,061	3,125	3,450	2,800	2,850	2,600	3,050
1956	3,151	3,200	4,200	2,700	2,850	3,000	2,900
1957	3,204	3,100	4,300	2,675	3,200	3,300	3,200
1958	3,164	2,950	4,450	2,650	2,800	3,100	3,100
1959	3,382	3,400	4,650	2,850	2,700	3,400	3,150
1960	3,423	3,525	4,775	2,850	2,950	3,400	3,075
1961	3,411	3,500	4,800	2,925	3,300	3,300	2,900
1962	3,726	3,850	4,950	3,050	3,200	4,200	3,550
1963	3,968	4,300	4,325	3,325	3,900	4,200	4,125
1964	4,098	4,300	5,050	3,300	3,800	4,300	4,150
1965	4,255	4,300	4,900	3,550	3,700	4,500	4,600
1966	4,322	4,300	5,500	3,700	4,300	4,400	4,200
1967	4,537	4,550	4,900	3,900	4,300	4,600	5,000
1968	4,425	4,350	5,325	3,900	4,300	4,500	4,600
1969	4,318	4,950	5,525	3,400	4,200	4,600	3,950
1970	4,618	4,900	5,700	3,900	4,400	4,400	4,450
1971	4,718	5,050	5,200	3,800	4,600	4,800	5,100
1972	4,700	4,975	5,614	3,825	4,559	4,449	4,727
1973	4,274	4,770	5,616	3,451	4,306	4,346	3,740
1974	4,440	4,535	5,380	3,650	4,180	3,886	4,494
1975	4,558	4,540	5,750	3,810	3,900	4,210	4,560
1976	4,663	4,770	5,520	3,910	4,200	4,200	4,810
1977	4,412	4,230	5,810	3,670	4,000	3,700	4,670
1978	4,484	4,110	5,220	3,820	4,250	4,330	4,700
1979	4,599	4,320	6,520	3,910	4,050	3,810	4,220
1980	4,413	4,110	6,440	3,550	3,840	4,180	4,230
1981	4,819	4,520	6,900	4,060	4,390	4,080	4,700
1982	4,710	4,290	6,700	4,160	4,120	4,480	4,690
1983	4,598	4,280	7,040	3,820	4,000	4,090	4,340
1984	4,954	4,600	7,120	4,150	4,350	4,600	4,940
1985	5,414	5,200	7,300	4,370	5,350	4,810	5,490
1986	5,651	5,300	7,700	4,550	5,400	5,120	6,250
1987	5,555	5,250	7,550	4,550	5,100	5,400	5,900
1988	5,514	5,350	7,020	4,500	5,300	5,100	6,000
1989	5,749	5,600	7,900	4,430	5,700	5,200	5,700
1990	5,529	5,000	7,700	4,860	5,700	4,700	6,000
1991	5,731	5,300	8,100	4,850	5,600	5,100	6,000
1992	5,736	5,500	8,500	4,650	5,700	4,800	5,800
1993	5,510	5,050	8,300	4,550	5,300	4,900	5,400
1994	5,964	5,700	8,500	4,750	5,900	5,200	6,000
1995	5,621	5,450	7,600	4,600	5,400	5,300	5,600
1996	6,120	6,150	7,490	4,870	6,000	5,550	6,200
1997	5,897	5,700	8,250	4,630	5,800	5,300	5,500
1998	5,669	5,800	6,840	4,530	5,800	5,200	5,600
1999 1/	5,929	6,000	7,000	5,000	5,700	5,100	6,300

1/ Preliminary as of November 1999.

Appendix table 13--Proportional distribution of rice production, by grain type, United States, 1953-99

Crop year	Long grain	Medium grain	Short grain	Total production
		---Percent---		1,000 cwt
1953	43.5	33.0	23.5	52,834
1954	45.5	35.6	18.9	64,193
1955	50.4	27.7	21.9	55,902
1956	57.1	20.5	23.1	49,459
1957	56.4	20.5	23.1	42,935
1958	55.7	21.2	23.1	44,760
1959	50.5	29.1	20.4	53,647
1960	48.2	35.2	16.6	54,591
1961	45.3	38.4	16.3	54,198
1962	43.7	41.8	14.5	66,045
1963	36.8	48.7	14.5	70,269
1964	37.5	50.2	12.3	73,166
1965	43.0	45.6	11.4	76,281
1966	41.6	46.5	11.9	85,020
1967	48.5	42.3	9.2	89,379
1968	46.8	42.1	11.1	104,142
1969	49.0	40.3	10.7	91,904
1970	49.3	40.4	10.3	83,805
1971	52.6	37.2	10.2	85,768
1972	50.2	39.7	10.1	85,439
1973	46.2	42.9	10.9	92,765
1974	49.8	41.0	9.2	112,386
1975	52.9	38.4	8.7	128,437
1976	60.6	31.8	7.6	115,648
1977	62.7	26.5	10.8	99,223
1978	63.7	27.4	8.9	133,170
1979	61.2	30.6	8.2	131,947
1980	59.4	35.2	5.4	146,150
1981	60.4	33.7	5.9	182,742
1982	60.8	33.4	5.8	153,637
1983	65.2	26.7	8.1	99,720
1984	69.2	25.4	5.4	138,810
1985	74.4	21.1	4.5	134,913
1986	72.8	24.0	3.2	133,356
1987	68.7	29.0	2.3	129,603
1988	74.6	23.1	2.3	159,897
1989	70.7	26.8	2.5	154,487
1990	69.1	30.3	0.6	156,088
1991	68.5	31.0	0.5	159,367
1992	71.3	28.2	0.6	179,658
1993	66.0	33.2	0.8	156,110
1994	67.5	32.1	0.5	197,779
1995	70.0	29.5	0.5	173,871
1996	66.2	33.2	0.6	171,599
1997	68.0	31.2	0.8	182,992
1998	75.3	23.6	1.0	188,051
1999 1/	71.8	26.4	1.8	211,714

1/ Estimated.

Appendix table 14--Use and ending stocks for rice, United States, 1953-99

Crop year	Food 1/	Seed	Brewers	Exports	Total use 2/	Ending stocks	Stocks-to-use ratio
			---Mil. cwt---				Percent
1953	17.3	3.1	4.6	22.7	47.2	7.5	16.0
1954	18.7	2.2	5.6	14.3	45.1	26.7	59.2
1955	19.1	2.0	6.0	18.7	48.2	34.6	71.9
1956	19.2	1.7	5.1	37.5	64.5	20.0	30.9
1957	19.0	1.8	4.8	18.3	45.0	18.2	40.4
1958	18.8	2.1	4.7	19.8	47.4	15.7	33.0
1959	20.7	2.1	5.0	29.2	58.0	12.2	21.0
1960	19.9	2.1	4.9	29.5	56.9	10.0	17.7
1961	22.6	2.4	4.7	29.2	59.3	5.3	9.0
1962	21.5	2.4	4.1	35.5	63.7	7.7	12.1
1963	22.5	2.4	3.8	41.8	70.5	7.5	10.6
1964	24.2	2.5	4.3	42.5	73.5	7.7	10.5
1965	23.5	2.7	4.7	43.3	76.4	8.2	10.7
1966	23.9	2.7	5.3	51.6	84.8	8.5	10.0
1967	25.0	3.2	5.4	56.9	91.1	6.8	7.5
1968	27.0	2.9	5.8	56.1	94.7	16.2	17.1
1969	23.5	2.5	7.1	56.9	91.9	16.4	17.8
1970	25.1	2.5	6.8	46.5	83.1	18.6	22.4
1971	25.5	2.5	7.4	56.9	94.1	11.4	12.2
1972	25.1	3.0	7.7	54.0	92.3	5.1	5.6
1973	26.1	3.6	8.1	49.7	90.2	7.8	8.7
1974	28.6	4.0	8.4	69.5	113.2	7.1	6.2
1975	27.7	3.5	9.1	56.5	98.6	36.9	37.4
1976	29.2	3.2	10.3	65.6	112.1	40.5	36.1
1977	23.5	4.3	9.9	72.8	112.4	27.4	24.4
1978	33.7	4.3	11.2	75.7	129.1	31.6	24.5
1979	33.2	4.8	11.2	82.6	137.9	25.7	18.6
1980	38.4	5.1	11.0	91.4	155.6	16.5	10.6
1981	42.5	4.4	12.7	82.0	150.6	49.0	32.5
1982	37.3	3.2	13.5	68.9	131.8	71.5	54.0
1983	33.2	3.3	12.8	70.3	125.2	46.9	37.5
1984	35.8	2.8	13.9	62.1	122.6	64.7	52.8
1985	45.6	2.6	14.1	58.7	124.5	77.3	62.1
1986	52.3	2.6	14.8	84.2	160.9	51.4	31.7
1987	54.9	3.6	15.4	72.2	152.6	31.4	20.6
1988	57.4	3.4	15.6	85.9	168.3	26.7	15.9
1989	60.1	3.3	15.4	77.1	158.9	26.3	16.6
1990	63.8	3.6	15.3	70.9	162.6	24.6	15.1
1991	67.1	3.9	15.4	66.4	161.8	27.4	16.9
1992	69.0	3.8	15.1	77.0	173.7	39.4	22.7
1993	71.2	4.3	14.3	75.3	176.7	25.8	14.6
1994	74.0	3.9	14.5	99.3	199.8	31.3	15.7
1995	78.0	3.5	15.6	82.2	187.8	25.0	13.3
1996	81.0	3.9	15.8	77.2	179.9	27.2	15.1
1997	84.0	4.1	16.0	86.3	191.5	27.9	14.6
1998	84.0	4.4	15.4	83.6	204.5	22.0	10.7
1999 3/	87.0	4.1	15.4	82.0	195.0	49.4	25.3

1/ Includes shipments to U.S. territories. 2/ Includes residual. 3/ Forecast.

Source: National Agricultural Statistics Service, USDA.

Appendix table 15--U.S. rice distribution patterns, 1955/56-1997/98 1/

Crop year	Direct food use 2/	Imports	Direct food use plus imports	Processed foods	Total food use 3/	Brewers' use	Total domestic use 4/
				Million cwt (milled)			
1955/56	8.1	0.1	8.3	1.5	9.8	4.2	13.9
1956/57	8.7	0.0	8.7	1.6	10.3	3.6	13.8
1960/61	10.3	0.2	10.5	2.2	12.7	3.5	16.1
1961/62	11.3	0.3	11.6	2.3	13.9	3.4	17.2
1966/67	11.1	0.0	11.1	3.0	14.1	3.8	17.8
1969/70	13.0	0.1	13.1	3.0	16.1	5.1	21.2
1971/72	12.8	0.8	13.6	3.5	17.1	5.4	22.5
1973/74	13.2	0.1	13.3	3.4	16.7	5.9	22.6
1974/75	12.6	0.1	12.7	2.5	15.2	6.0	21.2
1975/76	13.0	0.0	13.0	2.9	15.8	6.4	22.2
1978/79	15.2	0.1	15.3	3.7	19.0	7.9	26.9
1980/81	18.8	0.2	18.9	4.5	23.4	8.0	31.4
1982/83	19.2	0.5	19.7	3.3	23.0	9.6	32.6
1984/85	21.2	1.1	22.3	5.4	27.7	9.7	37.4
1986/87	22.9	1.9	24.7	7.6	32.4	10.7	43.0
1988/89	25.1	2.7	27.7	8.6	36.3	11.2	47.5
1990/91	28.0	3.5	31.4	12.2	43.6	11.0	54.6
1994/95	31.5	5.4	36.9	16.1	53.1	10.7	63.8
1995/96	36.3	5.3	41.6	14.9	56.5	11.2	67.7
1996/97	35.8	7.0	42.8	14.1	56.9	10.8	67.7
1997/98	37.6	6.6	44.2	15.6	59.8	11.1	70.9

1/ Does not include shipments to U.S. territories or seed use. 2/ Does not include imports. 3/ Includes direct food use, processed foods, and imports. 4/ Includes total food use and brewers use.

Sources: Direct food use and processed food use data are from milled rice distribution surveys reported by domestic rice mills. Survey data 1955/56 to 1990/91, Economic Research Service, USDA. Survey data 1994/95 to 1997/98 compiled by Food Research Associates for the USA Rice Federation. Import data are from the U.S. Department of Commerce. Brewers use data from the U.S. Treasury Department.

Appendix table 16--Per capita rice consumption, United States, 1955/56-1997/98 1/

Crop year	Direct food use 2/	Imports	Direct food use plus imports	Processed foods	Total food use 3/	Brewers' use	Total domestic use 4/
				Pounds--milled basis			
1955/56	4.9	0.1	5.0	0.9	5.9	2.5	8.4
1956/57	5.1	0.0	5.1	0.9	6.0	2.1	8.1
1960/61	5.7	0.1	5.8	1.2	7.0	1.9	8.9
1961/62	6.1	0.2	6.3	1.2	7.5	1.8	9.3
1966/67	5.6	0.0	5.6	1.5	7.1	1.9	9.1
1969/70	6.4	0.1	6.5	1.5	7.9	2.5	10.4
1971/72	6.2	0.4	6.6	1.7	8.2	2.6	10.8
1973/74	6.2	0.1	6.3	1.6	7.9	2.8	10.7
1974/75	5.9	0.0	5.9	1.2	7.1	2.8	9.9
1975/76	6.0	0.0	6.0	1.3	7.3	3.0	10.3
1978/79	6.8	0.0	6.8	1.7	8.5	3.5	12.1
1980/81	8.2	0.1	8.3	2.0	10.3	3.5	13.8
1982/83	8.2	0.2	8.4	1.4	9.9	4.1	14.0
1983/84	8.9	0.5	9.4	2.3	11.7	4.1	15.8
1986/87	9.4	0.8	10.2	3.1	13.4	4.4	17.8
1988/89	10.1	1.1	11.2	3.5	14.7	4.5	19.2
1990/91	11.1	1.4	12.5	4.9	17.4	4.4	22.0
1994/95	12.0	2.1	14.1	6.2	20.3	4.1	24.3
1995/96	13.7	2.0	15.7	5.6	21.4	4.2	25.6
1996/97	13.4	2.6	16.0	5.3	21.3	4.1	25.4
1997/98	13.9	2.6	16.4	5.8	22.2	4.0	26.3

1/ Does not include shipments to U.S. territories or seed use. 2/ Does not include imports. 3/ Includes direct food use, processed foods, and imports. 4/ Includes total food use and brewers use.

Sources: Direct food use and processed food use data are from milled rice distribution surveys reported by domestic rice mills. Survey data 1955/56 to 1990/91, Economic Research Service, USDA. Survey data 1994/95 to 1996/97 compiled by Food Research Associates for the USA Rice Federation. Import data are from the U.S. Department of Commerce. Brewers use data from the U.S. Treasury Department.

Appendix table 17--Prices and ending stocks for rice, 1953-99

Crop year	Ending stocks			Farm price	Loan rate	Target price	Direct payment
	CCC 1/	Free	Total				
		---Mil cwt---			---$/cwt---		
1953	1.20	6.30	7.50	5.19	4.84	---	---
1954	18.40	8.30	26.70	4.57	4.92	---	---
1955	27.40	7.20	34.60	4.81	4.66	---	---
1956	12.60	7.40	20.00	4.86	4.57	---	---
1957	12.00	6.20	18.20	5.11	4.72	---	---
1958	9.50	6.20	15.70	4.68	4.48	---	---
1959	6.90	5.30	12.20	4.59	4.38	---	---
1960	4.10	5.90	10.00	4.55	4.42	---	---
1961	0.30	5.00	5.30	5.14	4.71	---	---
1962	1.80	5.90	7.70	5.04	4.71	---	---
1963	1.40	6.10	7.50	5.01	4.71	---	---
1964	1.10	6.60	7.70	4.90	4.71	---	---
1965	0.60	7.60	8.20	4.93	4.50	---	---
1966	0.20	8.30	8.50	4.77	4.50	---	---
1967	0.10	6.70	6.80	4.97	4.55	---	---
1968	5.50	10.70	16.20	5.00	4.60	---	---
1969	6.40	10.00	16.40	4.95	4.72	---	---
1970	9.50	9.10	18.60	5.17	4.86	---	---
1971	2.70	8.70	11.40	5.34	5.07	---	---
1972	0.10	5.00	5.10	6.73	5.27	---	---
1973	0.00	7.80	7.80	13.80	6.07	---	---
1974	0.00	7.10	7.10	11.20	7.54	---	---
1975	18.70	18.20	36.90	8.35	8.52	---	---
1976	18.60	21.90	40.50	7.02	6.19	8.25	0.00
1977	10.80	16.60	27.40	9.49	6.19	8.25	0.00
1978	8.30	23.20	31.60	8.16	6.40	8.53	0.78
1979	1.70	24.00	25.70	10.50	6.79	9.05	0.00
1980	0.00	16.50	16.50	12.80	7.12	9.49	0.00
1981	17.50	31.50	49.00	9.05	8.01	10.68	0.28
1982	22.30	49.20	71.50	7.91	8.14	10.85	2.71
1983	25.00	21.90	46.90	8.57	8.14	11.40	2.77
1984	44.30	20.40	64.70	8.04	8.00	11.90	3.76
1985	43.60	33.70	77.30	6.53	8.00	11.90	3.90
1986	8.70	42.70	51.40	3.75	7.20	11.90	4.70
1987	0.00	31.40	31.40	7.27	6.84	11.66	4.82
1988	0.00	26.70	26.70	6.83	6.63	11.15	4.31
1989	0.00	26.31	26.31	7.35	6.50	10.80	3.56
1990	0.08	24.51	24.59	6.68	6.50	10.71	4.16
1991	0.40	26.98	27.38	7.58	6.50	10.71	3.07
1992	0.10	39.44	39.44	5.89	6.50	10.71	4.21
1993	0.00	25.77	25.77	7.98	6.50	10.71	3.98
1994	0.10	31.18	31.28	6.78	6.50	10.71	3.79
1995	0.00	25.03	25.03	9.15	6.50	10.71	3.22
1996	0.00	27.24	27.24	9.96	6.50	3/ ---	4/ 2.77
1997	0.00	27.89	27.89	9.70	6.50	3/ ---	4/ 2.71
1998	0.00	21.97	21.97	8.83	6.50	3/ ---	4/ 4.37
1999 2/	N/A	N/A	49.40	5.50-6.00	6.50	3/ ---	4/ 5.64

--- = Not applicable. N/A = Not available.

1/ Commodity Credit Corporation. 2/ Forecast. 3/ Eliminated in 1996 farm act. 4/ Contract payment rate. Includes supplemental AMTA payments in 1998 and 1999.

Appendix table 18--Farm program prices and payment rates, 1976/77-1999/00

Crop year	Target price	Loan rate	Annual average announced world price 1/	5-month price 2/	Season average price	Deficiency payment rate
			Dollars/cwt			
1976/77	8.25	6.19	---	6.55	7.02	0.00
1977/78	8.25	6.19	---	9.08	9.49	0.00
1978/79	8.53	6.40	---	7.75	8.16	0.78
1979/80	9.05	6.79	---	9.87	10.50	0.00
1980/81	9.49	7.12	---	11.30	12.80	0.00
1981/82	10.68	8.01	---	10.40	9.05	0.28
1982/83	10.85	8.14	---	7.69	7.91	2.71
1983/84	11.40	8.14	---	8.63	8.57	2.77
1984/85	11.90	8.00	---	8.14	8.04	3.76
1985/86	11.90	8.00	3.62	7.73	6.53	3.90
1986/87	11.90	7.20	3.51	3.87	3.75	4.70
1987/88	11.66	6.84	5.99	5.71	7.27	4.82
1988/89	11.15	6.63	6.54	6.84	6.83	4.31
1989/90	10.80	6.50	6.05	7.24	7.35	3.56
1990/91	10.71	6.50	5.46	6.25	6.68	4.16
1991/92	10.71	6.50	5.95	7.64	7.58	3.07
1992/93	10.71	6.50	4.95	6.44	5.89	4.21
1993/94	10.71	6.50	6.07	6.73	7.98	3.98
1994/95	10.71	6.50	6.10	6.65	6.78	3.79
1995/96	10.71	6.50	7.71	8.62	9.15	3.22
1996/97	4/ ---	6.50	7.66	9.74	9.96	5/ 2.77
1997/98	4/ ---	6.50	8.45	9.83	9.70	5/ 2.71
1998/99	4/ ---	6.50	7.37	9.12	8.83	5/ 6/ 4.37
1999/00 3/	4/ ---	6.50	NA	NA	3/ 5.50-6.00	5/ 6/ 5.64

-- = Not applicable.

1/ 52-week average of announced world prices weighted by share of production for each grain type (long, medium, and short). 2/ First 5 months of the marketing year, August-December. 3/ Preliminary. Season-average price forecast November 1999. 4/ Eliminated under the 1996 farm act. 5/ Contract payment rate; deficiency payments eliminated under the 1996 farm act. 6/ Includes supplemental AMTA payments for 1998 and 1999.

Appendix table 19--Farm program base acres, program acres idled, and participation, 1982/83-1999/00

Crop Year	Contract acres		Partici-pation rate	ARP as a percent	Acres idled/Diverted/Flexed					
	Total	Enrolled 1/			ARP 2/	CRP 3/	Diverted 4/	50/85-92 4/	Flexed or idled 5/	Total
	--1,000 acres--		---Percent---		--- 1,000 acres ---					
1982/83	3,969	3,093	77.9	15	15	NA		NA	NA	0
1983/84	3,946	3,857	97.7	15	547	NA	192	NA	NA	739
1984/85	4,183	3,517	84.6	25	785	NA		NA	NA	785
1985/86	4,234	3,814	90.1	20	682	NA	559	NA	NA	1,241
1986/87	4,249	3,978	93.6	35	1,305	1		174	NA	1,480
1987/88	4,160	3,998	96.1	35	1,325	3		241	NA	1,569
1988/89	4,155	3,918	94.3	25	950	4		138	NA	1,092
1989/90	4,168	3,906	93.7	25	939	9		245	NA	1,193
1990/91	4,154	3,890	93.7	20	735	13		287	NA	1,035
1991/92	4,155	3,947	95.0	5	196	13		654	454	1,143
1992/93	4,139	3,989	96.4	0	0	13		446	448	907
1993/94	4,143	4,000	96.5	5	199	13		481	469	1,162
1994/95	4,158	3,969	95.4	0	0	13		258	433	703
1995/96	4,182	3,962	94.7	5	197	13		279	427	916
1996/97	4,176	4,158	99.6	6/ ---	6/ ---	6		6/ ---	6/ ---	6/ ---
1997/98	---	4,157	99.9	6/ ---	6/ ---	4		6/ ---	6/ ---	6/ ---
1998/99	---	4,161	99.9	6/ ---	6/ ---	4		6/ ---	6/ ---	6/ ---
1999/00 P	---	4,152	99.9	6/ ---	6/ ---	3		6/ ---	6/ ---	6/ ---

--- = Not applicable. NA = Not available. P = based on FSA preliminary enrollment report. 1/ Enrolled for area reduction or contract payments. 2/ Acreage Reduction Program (ARP). 3/ Conservation Reserve Program (CRP). 4/ Paid land diversions. 5/ Normal flex and optional flex acres. 6/ Eliminated under the 1996 farm act.

Appendix table 20--Class loan rates and differentials, 1985-99

Item	Crop year							
	1985	1986	1987	1988	1989	1990	1991	1992
	Cents/lb.							
Milled rice:								
Long whole kernels	14.53	12.44	11.36	10.89	10.81	10.84	10.74	10.74
Medium and short whole kernels	10.50	10.44	10.36	9.89	9.81	9.84	9.74	9.74
Broken kernels	6.02	4.98	5.68	5.45	5.41	5.42	5.37	5.37
Differential (milled basis) 1/	4.03	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Rough rice 2/:	$/hundredweight							
Average, all classes	8.00	7.20	6.84	6.63	6.50	6.50	6.50	6.50
Average, long grain	8.68	7.52	7.03	6.75	6.68	6.68	6.65	6.66
Average, medium grain	6.49	6.36	6.54	6.33	6.13	6.21	6.11	6.13
Average, short grain	6.49	6.44	6.39	5.98	5.98	6.12	6.07	6.13

Item	Crop year						
	1993	1994	1995	1996	1997	1998	1999
	Cents/lb.						
Milled rice:							
Long whole kernels	10.75	10.72	10.69	10.77	10.69	10.71	10.66
Medium and short whole kernels	9.75	9.72	9.69	9.77	9.69	9.71	9.66
Broken kernels	5.37	5.36	5.35	5.38	5.35	5.35	5.33
Differential (milled basis) 1/	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Rough rice 2/:	$/hundredweight						
Average, all classes	6.50	6.50	6.50	6.50	6.50	6.50	6.50
Average, long grain	6.67	6.64	6.68	6.68	6.67	6.67	6.67
Average, medium grain	6.11	6.13	6.12	6.17	6.14	6.14	6.12
Average, short grain	5.89	6.02	5.99	6.02	6.07	6.04	6.04

1/ The loan differential (milled basis) is the difference between the class whole kernel loan rates for long and medium grain rice. 2/ Announced farm-stored loan rates. Loan rates per hundredweight of rough rice are based on the yields of whole and broken milled-rice kernels from the milling process. The loan rate is the total of a) the quantity of whole-kernel milled rice times the whole-kernel milled rice loan rate, plus b) the quantity of broken milled rice times broken rice loan rate.

Appendix table 21--World market rice prices, loan rate basis 1/

Date	Milled kernel rates				Rough rates		
	Long	Medium	Short	Broken	Long	Medium	Short
	---Cents/lb.---				---$/cwt---		
1986:							
April 11	6.78	7.36	7.36	3.40	4.19	4.47	4.53
April 18	6.78	5.86	5.86	3.39	4.18	3.65	3.70
April 29 - May 6	6.68	5.73	5.74	3.34	4.13	3.58	3.62
May 13	5.90	4.99	5.00	2.95	3.65	3.12	3.06
May 20	5.83	4.89	4.89	2.91	3.60	3.06	3.10
May 27 - June 24	5.78	4.79	4.79	2.89	3.57	3.00	3.04
July 1 - July 22	5.89	4.79	4.79	2.94	3.63	3.01	3.05
July 29 - August 5	6.07	4.96	4.96	3.04	3.75	3.11	3.15
August 12 - September 2	6.15	5.04	5.04	3.08	3.80	3.16	3.21
September 9 - September 30	5.90	4.81	4.81	2.95	3.64	3.02	3.06
October 7 - October 14	5.84	4.91	4.92	2.92	3.60	3.07	3.11
October 21 - November 18	5.85	5.06	5.07	2.93	3.62	3.15	3.20
November 25 - December 9	5.69	5.06	5.07	2.85	3.52	3.15	3.19
December 16 - December 30	5.57	4.95	4.95	2.78	3.44	3.07	3.12
1987:							
January 20 - March 31	5.70	5.12	5.06	2.85	3.53	3.23	3.13
April 7 - April 21	5.87	5.28	5.22	2.94	3.63	3.34	3.23
April 28	5.98	5.28	5.21	2.99	3.70	3.34	3.23
May 5 - May 19	5.98	5.38	5.31	2.99	3.70	3.40	3.29
May 26 - June 23	6.11	5.52	5.45	3.06	3.78	3.49	3.37
June 30	6.00	5.39	5.32	3.00	3.71	3.41	3.30
July 7 - July 21	5.89	5.29	5.22	2.95	3.65	3.35	3.23
July 28	6.02	5.45	5.38	3.01	3.73	3.44	3.33
August 4	6.15	5.58	5.51	3.07	3.81	3.52	3.41
August 11	6.27	5.69	5.62	3.13	3.88	3.59	3.48
August 18	6.39	5.69	5.62	3.19	3.95	3.60	3.48
August 25	6.51	5.84	5.76	3.25	4.03	3.69	3.57
September 1	6.76	6.11	6.03	3.38	4.18	3.86	3.73
September 8	7.28	6.56	6.49	3.64	4.51	4.15	4.02
September 15	7.90	7.22	7.14	3.95	4.89	4.56	4.41
September 22	8.66	7.95	7.87	4.33	5.36	5.01	4.86
September 29 - October 6	9.54	8.80	8.73	4.77	5.91	5.55	5.39
October 13 - October 27	10.21	9.42	9.35	5.10	6.32	5.94	5.77
November 3 - November 10	9.88	9.05	8.99	4.94	6.12	5.71	5.55
November 17 - November 24	9.81	9.04	8.93	4.91	5.90	5.63	5.43
December 1 - December 8	9.42	8.57	8.47	4.71	5.66	5.35	5.16
December 15 - December 29	9.42	8.43	8.32	4.71	5.66	5.27	5.08
1988:							
January 5	9.42	8.43	8.32	4.71	5.66	5.27	5.08
January 12	9.90	8.84	8.73	4.95	5.95	5.52	5.34
January 19 - January 26	11.22	9.72	9.61	5.61	6.74	6.10	5.90
February 2 - March 22	11.66	10.24	10.14	5.83	7.01	6.41	6.21
March 29	11.61	10.25	10.15	5.80	6.98	6.41	6.22
April 5 - April 19	11.83	10.46	10.36	5.92	7.12	6.54	6.35
April 26	11.56	10.31	10.21	5.78	6.95	6.44	6.25
May 3 - May 10	11.02	9.97	9.88	5.51	6.63	6.22	6.03
May 17 - May 31	10.58	9.72	9.62	5.29	6.37	6.05	5.86
June 7	10.09	9.28	9.18	5.04	6.07	5.78	5.59
June 14	10.28	9.44	9.34	5.14	6.19	5.88	5.69
June 21-28	10.69	9.87	9.77	5.35	6.43	6.14	5.95
July 5-12	10.98	10.17	10.08	5.49	6.61	6.32	6.13
July 19 - August 2	11.13	10.33	10.25	5.56	6.69	6.42	6.23
August 9	10.85	9.99	9.91	5.42	6.52	6.22	6.03
August 16	10.55	9.72	9.64	5.27	6.34	6.05	5.87
August 23 - September 6	10.68	9.82	9.74	5.34	6.42	6.11	5.93
September 13	10.43	9.57	9.48	5.22	6.28	5.96	5.78
September 20 - October 4	10.30	9.43	9.34	5.15	6.19	5.87	5.69
October 11 - October 25	10.13	9.30	9.21	5.07	6.10	5.79	5.61
November 1	10.03	9.23	9.16	5.01	6.18	5.78	5.53
November 8 - December 13	9.87	9.08	9.01	4.94	6.10	5.69	5.44
December 20 - December 27	9.55	8.80	8.74	4.77	5.90	5.51	5.27

See footnote at end of table.

Continued--

Appendix table 21--World market rice prices, loan rate basis 1/--Continued

Date	Milled kernel rates				Rough rates		
	Long	Medium	Short	Broken	Long	Medium	Short
	---Cents/lb.---				---$/cwt---		
1989:							
January 3 - January 10	9.55	8.80	8.74	4.77	5.90	5.51	5.27
January 17 - January 24	9.79	9.12	9.07	4.89	6.05	5.71	5.46
January 31 - February 21	9.97	9.29	9.23	4.98	6.16	5.82	5.55
February 28 - March 7	10.11	9.46	9.38	5.06	6.25	5.92	5.64
March 14 - April 4	10.33	9.69	9.62	5.17	6.39	6.06	5.78
April 11	10.56	9.85	9.78	5.28	6.53	6.17	5.88
April 18	10.64	9.93	9.86	5.32	6.58	6.22	5.93
April 25 - May 2	11.17	10.36	10.28	5.59	6.91	6.49	6.19
May 9 - May 16	11.41	10.69	10.60	5.71	7.05	6.69	6.37
May 23	11.60	10.83	10.74	5.80	7.17	6.78	6.46
May 30	11.91	11.09	11.00	5.96	7.36	6.94	6.62
June 6 - June 20	12.20	11.33	11.24	6.10	7.54	7.10	6.76
June 27	13.20	12.07	11.98	6.60	8.16	7.57	7.22
July 5	13.78	12.79	12.69	6.89	8.51	8.01	7.64
July 11 - August 1	14.41	13.39	13.30	7.21	8.91	8.39	8.00
August 8	14.15	12.91	12.82	7.07	8.74	8.10	7.73
August 15	13.00	11.82	11.74	6.50	8.04	7.42	7.08
August 22 - September 5	12.46	11.23	11.11	6.23	7.70	7.02	6.76
September 12	12.23	11.08	10.96	6.12	7.56	6.92	6.68
September 19 - October 10	11.74	10.57	10.45	5.87	7.26	6.61	6.38
October 17 - October 24	11.43	10.29	10.17	5.72	7.07	6.43	6.21
October 31	10.55	9.67	9.55	5.27	6.52	6.03	5.81
November 7 - November 14	10.16	9.37	9.25	5.08	6.28	5.84	5.63
November 21 - December 26	9.76	9.06	8.94	4.88	6.03	5.64	5.43
1990:							
January 2 - February 13	9.76	9.06	8.94	4.88	6.03	5.64	5.43
February 20	9.54	8.70	8.59	4.77	5.90	5.43	5.23
February 27-March 27	9.41	8.46	8.35	4.70	5.81	5.29	5.10
April 3 - April 17	9.31	8.25	8.14	4.66	5.75	5.17	4.98
April 24	9.11	8.10	7.99	4.56	5.63	5.07	4.89
May 1	8.87	7.95	7.84	4.43	5.48	4.97	4.79
May 8 - May 22	8.63	7.77	7.66	4.32	5.34	4.86	4.68
May 29	8.53	7.66	7.60	4.26	5.36	4.93	4.91
June 5 - June 19	8.45	7.58	7.52	4.22	5.31	4.88	4.86
June 26 - August 7	8.36	7.48	7.41	4.18	5.25	4.82	4.79
August 14 - August 21	8.31	7.38	7.31	4.16	5.22	4.75	4.73
August 28 - September 25	8.18	7.22	7.16	4.09	5.14	4.65	4.63
October 2 - December 18	8.28	7.32	7.27	4.14	5.20	4.72	4.70
December 26 - January 22, 1991	8.30	7.23	7.24	4.15	5.09	4.47	4.40
1991:							
January 29 - February 5	9.38	8.30	8.33	4.69	5.75	5.12	5.05
February 12 - March 5	9.39	8.36	8.37	4.70	5.76	5.15	5.07
March 12 - March 19	9.56	8.56	8.57	4.78	5.86	5.27	5.19
March 26 - April 9	9.66	8.69	8.70	4.83	5.92	5.35	5.26
April 16 - May 14	9.45	8.49	8.50	4.73	5.80	5.23	5.15
May 21 - July 30	9.63	8.64	8.65	4.81	5.90	5.32	5.24
August 6 - August 13	9.69	8.78	8.73	4.85	6.00	5.51	5.44
August 20 - November 19	9.74	8.80	8.75	4.87	6.03	5.52	5.45
November 26 - January 14, 1992	9.71	8.76	8.72	4.85	6.01	5.50	5.44
1992:							
January 21 - January 28	9.81	8.82	8.76	4.91	6.05	5.57	5.21
February 4 - March 24	9.98	9.03	8.95	4.99	6.15	5.70	5.32
March 31 - May 5	9.62	8.70	8.57	4.81	5.93	5.49	5.10
May 12 - July 14	9.43	8.46	8.32	4.71	5.81	5.34	4.96
July 21 - July 28	9.53	8.64	8.50	4.76	5.87	5.45	5.06
August 4 - August 11	9.65	8.76	8.74	4.82	5.98	5.51	5.50
August 18	9.50	8.64	8.63	4.75	5.89	5.44	5.42
August 25 - September 8	9.34	8.46	8.45	4.67	5.79	5.33	5.31
September 15 - September 22	9.15	8.25	8.24	4.57	5.67	5.20	5.18
September 29 - October 6	9.04	8.16	8.14	4.52	5.60	5.14	5.12
October 13 - November 17	8.88	7.96	7.93	4.44	5.50	5.02	4.99
November 24 - December 1	8.73	7.80	7.78	4.36	5.41	4.92	4.90
December 8 - January 5, 1993	8.63	7.81	7.78	4.32	5.35	4.92	4.89

See footnote at end of table.

Continued--

Appendix table 21--World market rice prices, loan rate basis 1/--Continued

Date	Milled kernel rates				Rough rates		
	Long	Medium	Short	Broken	Long	Medium	Short
	---Cents/lb.---				---$/cwt---		
1993:							
January 12	8.49	7.65	7.63	4.24	5.26	4.82	4.80
January 19 - February 9	8.38	7.54	7.51	4.19	5.27	4.76	4.73
February 16 - February 23	8.25	7.41	7.38	4.12	5.19	4.68	4.65
March 2 - March 9	8.07	7.18	7.15	4.04	5.08	4.54	4.51
March 16	7.98	7.07	7.04	3.99	5.02	4.47	4.44
March 23 - March 30	7.72	6.90	6.89	3.86	4.86	4.36	4.34
April 6 - April 13	7.50	6.76	6.75	3.75	4.72	4.27	4.25
April 20	7.36	6.63	6.61	3.68	4.63	4.19	4.16
April 27	7.07	6.42	6.39	3.54	4.45	4.05	4.02
May 4 - May 25	6.96	6.29	6.28	3.48	4.38	3.97	3.95
June 1 - July 27	6.75	6.06	6.03	3.38	4.25	3.83	3.80
August 3 - August 24	6.58	5.98	5.90	3.29	4.08	3.74	3.55
August 31 - September 21	6.80	6.17	6.09	3.40	4.22	3.86	3.67
September 28	6.69	6.06	5.98	3.35	4.15	3.79	3.60
October 5	7.43	6.76	6.68	3.72	4.61	4.23	4.02
October 12	7.95	7.21	7.12	3.97	4.93	4.51	4.29
October 19 - November 2	8.05	7.32	7.25	4.02	4.99	4.58	4.36
November 9	10.43	9.71	9.64	5.22	6.47	6.06	5.78
November 16 - November 30	11.48	10.76	10.67	5.74	7.12	6.71	6.39
December 7 - December 21	11.67	10.96	10.87	5.84	7.24	6.83	6.51
December 28	11.77	11.05	10.97	5.88	7.30	6.89	6.57
1994:							
January 4 - January 11	11.77	11.05	10.97	5.88	7.30	6.89	6.57
January 18	11.88	11.17	11.09	5.94	7.37	6.96	6.64
January 25	12.09	11.41	11.27	6.04	7.42	7.24	7.13
February 1 - March 15	12.20	11.52	11.38	6.10	7.49	7.31	7.20
March 22	11.42	11.53	11.38	5.71	7.01	7.28	7.15
March 29	11.32	11.54	11.40	5.66	6.95	7.28	7.15
April 6	10.54	11.55	11.40	5.27	6.47	7.25	7.10
April 12 - April 19	10.78	11.55	11.41	5.39	6.62	7.26	7.12
April 26	10.12	11.56	11.42	5.06	6.21	7.23	7.08
May 3	9.89	11.56	11.43	4.94	6.07	7.22	7.07
May 10 - May 24	9.76	11.57	11.43	4.88	5.99	7.22	7.06
May 31	8.94	11.36	11.20	4.47	5.49	7.06	6.88
June 7 - June 28	8.67	11.37	11.22	4.33	5.32	7.05	6.87
July 5	8.67	10.61	10.47	4.33	5.32	6.61	6.45
July 12	8.44	10.03	9.89	4.22	5.18	6.26	6.11
July 19 - July 26	8.44	9.76	9.62	4.23	5.18	6.10	5.96
August 2	8.47	9.31	9.16	4.23	5.25	5.76	5.43
August 9	8.47	9.31	9.16	4.23	5.25	5.76	5.43
August 16	8.60	8.94	8.79	4.30	5.33	5.56	5.25
August 23	8.71	8.95	8.79	4.35	5.40	5.57	5.26
August 30	8.71	8.95	8.79	4.35	5.40	5.57	5.26
September 6	9.06	8.94	8.79	4.53	5.62	5.59	5.29
September 13	9.06	9.12	8.96	4.53	5.62	5.69	5.38
September 20	9.06	9.12	8.96	4.53	5.62	5.69	5.38
September 27	9.06	9.12	8.96	4.53	5.62	5.69	5.38
October 4	9.06	9.12	8.96	4.53	5.62	5.69	5.38
October 11 - October 18	9.26	8.91	9.76	4.63	5.74	5.58	5.29
October 25 - Decmber 13	9.43	8.91	8.77	4.72	5.79	5.59	5.31
December 20 - December 27	9.34	8.92	8.77	4.67	5.86	5.51	5.27
1995:							
January 3	9.46	8.78	8.72	4.73	5.86	5.51	5.27
January 10	9.59	8.77	8.71	4.80	5.94	5.51	5.27
January 17 - January24	10.07	8.97	8.90	5.03	6.24	5.65	5.41
January 31 - February 21	10.20	8.95	8.91	5.10	6.41	5.68	5.64
February 28 - April 25	10.20	9.06	9.01	5.10	6.41	5.74	5.70
May 2 - May 16	10.37	9.18	9.12	5.19	6.52	5.82	5.77
May 23 - May 30	10.53	9.39	9.33	5.27	6.62	5.95	5.90
June 6 - June 13	11.69	9.54	9.48	5.82	7.35	6.10	6.06
June 20 - June 27	11.80	9.29	9.24	5.90	7.42	5.96	5.93
July 4	12.01	9.39	9.32	6.00	7.55	6.03	5.99
July 11	12.01	9.53	9.46	6.00	7.55	6.11	6.07
July 18	12.20	9.53	9.46	6.10	7.67	6.12	6.08
July 25	12.33	9.51	9.46	6.16	7.75	6.12	6.09

See footnote at end of table.

Continued--

Appendix table 21--World market rice prices, loan rate basis 1/--Continued

Date	Milled kernel rates				Rough rates		
	Long	Medium	Short	Broken	Long	Medium	Short
	---Cents/lb.---				---$/cwt---		
1995:							
August 1 - August 8	12.57	9.62	9.51	6.28	7.85	6.18	6.02
August 15 - August 22	12.90	9.73	9.59	6.45	8.06	6.26	6.09
August 29 - September 5	12.50	9.74	9.61	6.25	7.81	6.24	6.07
September 12	12.71	9.73	9.60	6.36	7.94	6.25	6.08
September 19	12.92	9.73	9.59	6.46	8.07	6.26	6.09
September 26	13.22	10.00	9.86	6.61	8.26	6.43	6.26
October 3	13.37	10.23	10.11	6.68	8.35	6.57	6.40
October 10 - October 17	14.13	10.36	10.23	7.07	8.83	6.69	6.53
October 24 - October 31	14.44	10.35	10.23	7.22	9.02	6.70	6.55
November 7	14.20	10.36	10.22	7.10	8.87	6.69	6.53
November 14 - November 21	13.24	10.79	10.66	6.62	8.27	6.88	6.68
December 5	13.24	11.19	11.08	6.62	8.27	7.11	6.90
December 12 - December 26	13.03	11.34	11.22	6.52	8.14	7.18	6.96
1996:							
January 2 - January 16	13.03	11.34	11.22	6.52	8.14	7.18	6.96
January 23-January 30	13.20	11.44	11.45	6.60	8.06	7.21	7.38
February 6	13.00	11.99	11.99	6.50	7.94	7.50	7.68
February 13 - February 27	12.91	11.98	11.98	6.45	7.88	7.49	7.67
March 5 -March 12	12.91	11.76	11.77	6.45	7.88	7.37	7.55
March 19 - March 26	13.20	11.77	11.76	6.60	8.06	7.39	7.56
April 2	12.87	11.77	11.78	6.44	7.86	7.37	7.55
April 9	12.61	11.53	11.54	6.31	7.70	7.22	7.40
April 16 - May 7	12.46	11.54	11.54	6.23	7.61	7.22	7.39
May 14	11.96	11.26	11.26	5.98	7.30	7.03	7.20
May 21 - May 28	11.96	11.60	11.61	5.98	7.30	7.22	7.40
June 4	12.14	11.60	11.59	6.07	7.41	7.23	7.40
June 11 - June 18	12.64	11.70	11.70	6.32	7.72	7.32	7.49
June 25 - July 2	12.64	12.58	12.59	6.32	7.72	7.81	8.01
July 9 - July 23	12.81	12.58	12.59	6.40	7.82	7.82	8.02
July 30	12.71	12.59	12.58	6.35	7.76	7.82	8.01
August 6	12.75	12.78	12.63	6.37	7.88	8.01	7.71
August 13 - August 20	12.62	12.60	12.46	6.31	7.80	7.90	7.61
August 27 - October 1	12.39	12.61	12.48	6.19	7.66	7.89	7.60
October 8	12.29	12.62	12.47	6.15	7.60	7.89	7.59
October 15	12.18	12.61	12.47	6.09	7.53	7.88	7.58
October 22	11.99	12.40	12.25	5.99	7.41	7.75	7.45
October 29 - November 19	11.65	12.29	12.16	5.82	7.20	7.67	7.37
November 26 - December 10	11.53	12.29	12.15	5.77	7.13	7.66	7.36
December 17 - December 24	11.74	12.41	12.27	5.87	7.26	7.74	7.44
December 31	12.05	12.41	12.26	6.03	7.45	7.76	7.46
1997:							
January 7 - January 21	12.05	12.41	12.26	6.03	7.45	7.76	7.46
January 28	12.37	12.20	12.19	6.19	7.81	7.68	7.54
February 4 - March 4	12.23	12.20	12.18	6.12	7.72	7.67	7.53
March 11	11.80	12.22	12.19	5.90	7.45	7.66	7.51
March 18	11.66	12.21	12.19	5.83	7.33	7.65	7.50
March 25	11.36	11.77	11.76	5.68	7.17	7.38	7.24
April 1	11.15	11.77	11.74	5.58	7.04	7.37	7.22
April 8 - April 15	11.15	11.58	11.56	5.58	7.04	7.26	7.12
April 22	11.15	11.45	11.42	5.58	7.04	7.18	7.04
April 29	11.95	11.43	11.41	5.97	7.54	7.21	7.08
May 6 - May 20	13.28	11.41	11.39	6.64	8.38	7.27	7.15
May 27 - June 3	13.28	11.01	10.99	6.64	8.38	7.04	6.93
June 10	13.43	11.15	11.14	6.72	8.48	7.13	7.02
June 17 - July 15	13.59	11.14	11.12	6.80	8.58	7.13	7.02
July 22 - July 29	13.59	10.29	10.28	6.80	8.58	6.64	6.55
August 5	13.97	11.35	11.28	6.98	8.71	7.27	7.15
August 12 - August 19	13.50	11.36	11.31	6.75	8.42	7.25	7.13
August 26	13.26	11.26	11.21	6.63	8.27	7.18	7.06
September 2 - September 9	12.59	11.18	11.11	6.30	7.85	7.10	6.96
September 16 - September 23	12.59	12.02	11.94	6.30	7.85	7.58	7.42
September 30 - October 21	12.88	12.01	11.94	6.44	8.03	7.59	7.44
October 28	12.70	12.01	11.95	6.35	7.92	7.58	7.43
November 4 - November 18	13.07	12.01	11.94	6.54	8.15	7.60	7.45
November 25 - December 30	13.38	12.17	12.10	6.69	8.34	7.71	7.56

See footnote at end of table.

Continued--

Appendix table 21--World market rice prices, loan rate basis 1/--Continued

Date	Milled kernel rates				Rough rates		
	Long	Medium	Short	Broken	Long	Medium	Short
	---Cents/lb.---				---$/cwt---		
1998:							
January 6	13.63	12.28	12.22	6.82	8.50	7.79	7.64
January 13 - January 27	14.19	12.27	12.22	7.10	8.85	7.81	7.68
February 3 - March 10	14.94	12.42	12.32	7.47	9.41	7.88	7.72
March 17 - March 24	15.18	12.41	12.31	7.59	9.56	7.89	7.73
March 31	15.18	12.17	12.06	7.59	9.56	7.75	7.60
April 7 - April 21	15.56	12.34	12.24	7.78	9.80	7.87	7.72
April 28	15.56	12.64	12.55	7.78	9.80	8.04	7.89
May 5 - May 12	13.99	12.39	12.29	6.99	8.81	7.81	7.63
May 19	13.86	12.39	12.29	6.93	8.73	7.80	7.62
May 26	13.99	12.39	12.29	6.99	8.81	7.81	7.63
June 2 - June 23	14.56	12.51	12.41	7.28	9.17	7.91	7.74
June 30 - July 21	14.69	12.52	12.41	7.34	9.25	7.92	7.75
July 28	14.51	12.52	12.42	7.26	9.14	7.91	7.74
August 4 - August 25	14.07	12.13	12.06	7.03	8.77	7.71	7.56
September 1 - September 15	14.37	12.36	12.28	7.19	8.96	7.86	7.70
September 22	14.23	12.01	11.93	7.11	8.87	7.65	7.50
September 29	14.02	11.91	11.83	7.01	8.74	7.58	7.43
October 6	13.83	11.91	11.84	6.91	8.62	7.57	7.42
October 13 - October 20	13.43	11.91	11.83	6.71	8.37	7.55	7.39
October 27 - November 3	13.33	11.92	11.84	6.67	8.31	7.55	7.39
November 10 - November 17	12.80	11.83	11.77	6.40	7.98	7.47	7.31
November 24 - December 1	12.59	11.75	11.66	6.30	7.85	7.41	7.24
December 8	11.89	11.34	11.26	5.94	7.41	7.14	6.97
December 15 - December 29	12.00	11.35	11.26	6.00	7.48	7.15	6.98
1999:							
January 5	12.00	11.23	11.15	6.00	7.48	7.08	6.92
January 12	11.81	11.23	11.16	5.90	7.36	7.07	6.91
January 19	12.37	11.23	11.14	6.18	7.71	7.10	6.94
January 26	12.22	11.22	11.14	6.11	7.62	7.09	6.93
February 2 - February 9	11.95	11.14	11.10	5.98	7.40	7.09	7.15
February 16 - February 23	11.73	11.15	11.10	5.86	7.26	7.08	7.14
March 2	11.52	11.15	11.10	5.76	7.13	7.07	7.13
March 9	11.32	10.85	10.81	5.66	7.01	6.89	6.95
March 16	11.10	10.70	10.66	5.55	6.87	6.79	6.85
March 23 - March 30	10.68	10.72	10.66	5.34	6.61	6.78	6.83
April 6 - April 20	10.42	10.60	10.57	5.21	6.45	6.70	6.76
April 27 - May 4	10.32	10.61	10.56	5.16	6.39	6.70	6.75
May 11 - May 18	10.50	10.73	10.68	5.25	6.50	6.78	6.83
May 25 - June 15	10.60	10.73	10.67	5.30	6.56	6.78	6.83
June 22 - July 27	10.60	10.57	10.54	5.30	6.56	6.69	6.75
August 3 - August 17	8.67	8.06	7.98	4.33	5.42	5.09	4.99
August 23 - September 14	8.53	7.88	7.78	4.26	5.33	4.98	4.87
September 21	8.38	7.74	7.66	4.19	5.24	4.89	4.79
September 28 - October 12	8.19	7.51	7.43	4.09	5.12	4.75	4.65
October 19	8.00	7.51	7.43	4.00	5.00	4.74	4.64
October 26	7.74	7.20	7.12	3.87	4.84	4.55	4.45
November 2 - November 23	7.45	6.87	6.77	3.73	4.66	4.34	4.24

1/ Reduced repayment rates for 1985 crop loans were available beginning April 15, 1986. The repayment rate was the lower of the loan rate or the prevailing world market price. For 1he 1986 through 1995 crops, the repayment rate was the lower of (a) the loan level for the crop, or (b) the higher of the prevailing world market price or the minimum loan repayment level. The minimum loan repayment levels were established at 50 percent of the loan level for the 1986 and 1987 crops; 60 percent of the loan level for the 1988 crop; and 70 percent for the 1989 through 1995 crops. The minimum loan repayment level has been eliminated effective for 1996-crop loans, and loans are repayable at the lower of the loan level or the prevailing world price.

Appendix table 22--Rough rice: Average price received by farmers by month and marketing year 1/

Item	1982/83	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90	1990/91
					$/cwt				
Month:									
August	7.31	8.41	8.22	7.86	4.02	3.82	7.49	7.41	6.66
September	7.75	8.48	8.17	7.55	3.86	4.34	6.97	7.59	6.21
October	7.73	8.80	8.08	7.73	3.83	6.25	6.85	7.41	6.02
November	7.78	8.80	8.13	7.84	3.90	7.53	6.81	7.03	6.29
December	8.06	8.66	8.08	7.71	3.74	7.64	6.68	7.05	6.13
January	8.05	8.57	8.09	7.90	3.55	7.93	6.58	7.44	6.39
February	8.26	8.85	7.72	7.86	3.84	9.37	6.67	7.57	6.75
March	7.99	8.63	8.17	7.60	3.62	9.22	6.60	7.55	7.07
April	8.23	8.49	8.20	5.32	3.63	8.92	6.74	7.41	7.43
May	8.23	8.24	7.91	4.52	3.71	7.97	6.78	7.28	7.44
June	7.88	8.20	7.83	4.04	3.62	7.69	7.05	7.18	7.43
July	7.95	8.18	7.54	3.86	3.49	7.94	7.45	7.05	7.21
Season average price:									
12 months 1/	7.91	8.57	8.04	6.53	3.75	7.27	6.83	7.35	6.68
5 months 2/	7.69	8.63	8.14	7.73	3.87	5.71	6.84	7.24	6.25
State: 3/									
Arkansas	8.61	9.18	8.51	6.70	3.68	7.60	6.90	7.46	6.75
California	6.65	6.96	6.43	5.33	3.18	6.72	6.15	6.27	5.93
Louisiana	8.05	8.90	8.20	7.24	4.03	7.65	6.90	7.81	6.73
Mississippi	8.66	9.53	8.88	7.10	3.91	7.90	7.02	7.57	6.99
Missouri	8.65	9.49	8.70	7.05	3.57	7.41	7.22	7.54	7.21
Texas	8.94	9.97	8.90	7.38	4.22	8.07	7.24	8.02	7.41
Type:									
Long grain	8.56	9.36	8.66	6.75	3.82	7.77	6.96	7.59	6.94
Medium & short grain	6.91	7.13	6.66	5.87	3.55	6.36	6.47	6.71	6.19

Item	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99 4/	1999/00 5/
					$/cwt				
Month:									
August	7.16	6.60	5.14	6.87	7.77	10.10	9.94	8.95	7.62
September	7.67	6.41	5.16	6.82	8.01	10.00	9.92	9.35	6.88
October	7.65	6.40	6.01	6.52	8.84	9.66	10.00	9.25	6.23
November	7.84	6.40	7.94	6.63	9.21	9.41	9.82	8.98	6/ 6.45
December	7.98	6.38	8.78	6.60	9.45	9.82	9.77	9.06	
January	7.84	6.35	8.92	6.83	9.36	9.95	9.57	9.05	
February	7.97	6.06	9.99	6.74	9.19	10.10	9.75	8.97	
March	7.78	5.63	10.10	6.67	9.20	10.20	9.67	8.86	
April	7.46	5.50	9.80	6.75	9.35	10.30	9.40	8.54	
May	7.18	5.23	9.90	6.87	9.73	10.20	9.38	8.16	
June	6.97	5.02	8.76	7.06	9.77	9.90	9.58	8.20	
July	6.99	4.90	7.69	7.19	9.81	10.00	9.58	8.15	
Season average price:									
12 months 1/	7.58	5.89	7.98	6.78	9.15	9.96	9.70	8.83	5.50-6.00
5 months 2/	7.64	6.44	6.73	6.65	8.62	9.74	9.83	NA	NA
State: 3/									
Arkansas	7.69	5.93	7.97	6.52	9.14	10.20	9.87	8.55	NA
California	6.65	5.64	8.27	6.97	8.79	7.91	7.95	8.15	NA
Louisiana	7.67	5.88	7.65	6.71	9.09	10.60	10.20	8.90	NA
Mississippi	8.48	5.82	8.37	7.00	9.25	10.50	10.40	8.75	NA
Missouri	7.81	5.91	8.03	6.72	9.06	10.30	10.00	8.65	NA
Texas	8.15	6.17	7.69	7.12	9.73	10.80	10.90	9.15	NA
Type:									
Long grain	7.83	5.87	7.93	6.87	9.37	10.60	10.20	NA	NA
Medium & short grain	7.00	5.91	8.09	6.70	8.82	8.37	8.52	NA	NA

NA = Not available.

1/ August 1 to July 31 marketing year. 2/ First 5 months of marketing year--August-December. 3/ Marketing year for; Arkansas and Mississippi--August-July, California--October-September, Louisiana and Texas--July-June. 4/ State prices are from the July 1999 Annual Agricultural Price Summary. Grain type prices are from the January 30, 1999 Agricultural Prices. 5/ Season average farm price is from the November 10, 1999 WASDE. 6/ Preliminary.

Appendix table 23--Milled rice: Average price, f.o.b. mills, at selected milling centers 1/

Year and type	Aug.	Sept.	Oct.	Nov. 4/	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Simple average
						$/cwt, bagged							
						Southwest Louisiana							
Long grain 2/:													
1976/77	14.70	13.85	14.00	13.75	13.60	13.25	13.50	13.95	15.65	16.45	16.25	16.25	14.60
1977/78	15.95	16.20	17.75	22.10	24.15	24.00	24.00	23.75	23.50	22.00	21.50	20.40	21.30
1978/79	18.75	15.75	16.15	16.25	16.40	16.30	16.75	18.60	21.50	21.50	21.50	21.50	18.40
1979/80	21.50	21.50	22.05	22.50	21.00	20.60	22.50	24.30	24.00	23.25	21.80	20.90	22.15
1980/81	20.75	22.00	23.40	25.00	26.75	27.00	27.25	27.70	28.25	28.00	27.90	27.50	25.95
1981/82	26.40	24.30	23.25	21.90	20.75	19.80	18.60	18.00	17.55	17.60	17.20	17.00	20.20
1982/83	17.50	17.40	17.50	17.55	18.40	18.35	17.50	17.50	18.50	18.50	18.60	18.75	18.00
1983/84	19.40	19.75	19.35	19.50	19.50	19.50	19.25	19.25	19.25	19.25	19.25	19.25	19.40
1984/85	18.25	18.25	17.60	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	17.75	18.00
1985/86	17.50	17.50	17.50	17.50	17.50	17.50	17.50	17.50	15.50	12.69	12.75	12.25	16.10
1986/87	10.63	10.25	10.25	9.94	10.13	10.13	9.88	9.93	10.38	10.44	10.50	10.50	10.25
1987/88	10.76	12.69	17.94	19.90	19.50	20.38	24.45	24.50	24.00	20.25	18.69	17.88	19.25
1988/89	16.80	16.06	14.50	14.50	14.00	14.00	14.19	13.81	13.69	15.32	15.50	16.45	14.90
1989/90	16.38	15.94	15.56	14.97	14.63	15.33	15.63	15.38	15.73	15.84	15.63	15.30	15.55
1990/91	14.69	13.94	13.75	13.94	14.00	14.15	15.44	15.75	16.25	16.50	17.25	16.95	15.25
1991/92	16.38	16.48	16.56	17.13	17.31	17.31	17.28	16.56	16.44	15.69	15.10	15.19	16.45
1992/93	14.95	14.75	14.69	14.45	14.17	13.38	13.00	12.60	12.13	11.88	11.75	11.75	13.30
1993/94	12.05	12.59	15.71	23.75	26.25	26.25	24.88	23.44	22.75	21.00	17.50	16.13	20.20
1994/95	14.30	14.63	14.15	14.00	13.25	13.35	13.75	13.88	13.88	15.03	17.03	17.28	14.55
1995/96	17.25	17.81	20.25	19.88	19.00	18.55	18.44	18.19	18.60	19.50	19.50	19.70	18.90
1996/97	20.75	20.70	20.13	19.75	19.75	19.88	20.44	20.50	20.50	20.50	20.70	20.50	20.34
1997/98	20.06	19.40	18.94	19.25	19.15	19.00	19.00	18.55	18.38	18.31	18.50	18.50	18.92
1998/99	18.35	17.50	17.50	17.63	17.63	17.50	17.06	16.52	16.13	15.56	15.13	14.91	16.79
1999/00	14.68	14.38	14.00	13.88									
						Houston, Texas							
Long grain 2/:													
1976/77	15.50	14.50	14.75	14.80	14.10	13.85	13.90	14.00	15.45	16.25	16.25	16.25	14.95
1977/78	16.05	16.50	18.30	22.60	24.15	25.00	25.00	24.10	23.25	22.10	21.75	21.50	21.70
1978/79	19.00	16.50	16.60	16.20	16.35	16.30	16.60	18.20	21.00	21.00	21.00	21.00	18.30
1979/80	21.10	21.25	22.30	22.10	21.10	20.10	22.75	24.80	24.10	23.00	21.00	21.00	22.05
1980/81	21.00	21.70	23.10	24.75	26.55	26.55	25.75	27.10	27.75	28.00	27.40	27.00	25.55
1981/82	25.00	24.85	23.50	22.60	22.00	21.75	20.20	19.20	19.00	19.00	18.75	17.75	21.15
1982/83	18.25	18.75	18.00	18.00	18.00	19.00	19.00	19.00	19.00	19.00	19.10	19.40	18.70
1983/84	19.50	19.67	20.00	20.00	20.00	20.20	20.25	20.25	20.10	19.50	19.50	19.50	19.90
1984/85	19.38	18.69	18.75	18.75	18.75	18.75	18.75	18.75	18.75	18.75	18.75	18.75	18.80
1985/86	18.63	18.25	18.25	18.25	18.25	17.75	17.50	17.30	17.25	13.75	13.60	13.00	16.80
1986/87	13.00	13.00	13.00	13.00	13.00	11.13	10.50	10.50	10.50	10.50	10.50	10.50	11.60
1987/88	10.50	11.90	19.60	21.00	21.00	21.00	23.92	24.06	24.00	21.20	20.50	20.50	19.95
1988/89	18.20	16.00	15.25	15.00	15.00	15.00	15.00	15.00	15.00	15.13	15.50	16.50	15.55
1989/90	16.50	16.50	16.50	16.00	15.67	15.50	15.69	16.25	16.25	16.25	16.25	16.25	16.15
1990/91	15.81	14.50	14.50	14.50	14.50	14.50	16.00	16.00	16.00	16.50	17.00	17.00	15.55
1991/92	17.00	17.00	16.63	17.00	17.67	17.50	17.50	17.50	17.50	17.25	16.70	16.50	17.15
1992/93	16.50	16.50	16.50	16.10	15.75	15.25	14.92	15.00	15.00	14.31	13.60	13.50	15.25
1993/94	13.50	13.50	16.13	23.45	25.50	25.50	25.50	24.88	23.25	21.40	19.25	17.25	20.75
1994/95	15.80	15.50	13.90	13.75	13.75	13.75	13.75	13.75	13.75	14.33	16.38	17.90	14.70
1995/96	17.75	18.13	20.25	20.50	19.50	19.10	18.56	18.25	18.70	19.69	19.75	19.75	19.15
1996/97	20.94	20.75	20.44	19.94	19.75	20.06	21.19	21.75	21.75	21.75	21.75	21.38	20.95
1997/98	21.00	20.55	19.75	19.75	19.75	19.75	19.75	19.05	19.00	19.00	19.00	19.00	19.61
1998/99	18.85	18.63	18.25	18.50	18.50	18.44	18.22	18.07	17.75	17.31	17.05	17.00	18.05
1999/00	16.48	16.00	16.00	15.81									

See footnotes at end of table.

Continued--

Appendix table 23--Milled rice: Average price, f.o.b. mills, at selected milling centers 1/--Continued

Year and type	Aug.	Sept.	Oct.	Nov. 4/	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Simple average
						$/cwt, bagged							
						Arkansas							
Long grain 2/:													
1976/77	16.00	15.25	15.20	15.20	14.50	14.00	14.00	14.25	15.45	16.75	16.75	16.50	15.30
1977/78	16.15	15.95	19.00	23.10	25.00	25.00	25.00	23.50	23.50	23.15	21.60	20.55	21.80
1978/79	19.55	17.10	17.00	17.00	17.00	16.70	16.90	18.75	21.50	21.50	21.50	21.50	18.85
1979/80	21.50	23.50	24.00	23.00	21.35	20.10	22.40	24.00	23.75	22.25	21.50	20.50	22.30
1980/81	20.60	22.00	23.40	24.90	26.10	26.10	25.75	26.70	27.50	28.00	27.90	27.50	25.55
1981/82	26.40	24.30	23.05	22.30	20.85	19.60	19.00	18.20	17.55	17.40	17.20	16.60	20.20
1982/83	17.10	17.00	17.00	17.55	18.40	18.35	17.50	17.50	18.00	18.40	18.50	18.50	17.80
1983/84	18.50	18.50	18.85	19.00	19.00	19.00	18.50	18.50	18.50	18.50	18.50	18.50	18.65
1984/85	18.38	18.25	18.25	18.25	18.13	18.00	18.00	17.94	17.75	17.81	17.94	17.75	18.05
1985/86	17.75	17.50	17.38	17.25	17.25	17.25	17.25	17.25	15.50	13.25	13.10	12.50	16.10
1986/87	12.00	11.55	11.75	11.88	11.88	11.88	11.88	11.88	11.59	11.50	11.75	11.75	11.80
1987/88	11.95	13.56	18.81	20.50	20.17	20.88	24.00	24.06	24.00	22.50	20.81	19.00	20.00
1988/89	18.30	16.88	15.13	15.25	15.08	14.80	14.75	14.75	14.88	15.57	15.80	17.04	15.70
1989/90	17.19	16.63	15.94	15.69	15.75	15.90	16.00	16.00	16.00	16.00	16.00	16.00	16.10
1990/91	15.38	14.75	14.50	14.63	14.75	14.75	15.75	15.75	15.88	16.81	17.25	17.25	15.65
1991/92	16.83	16.55	16.50	17.38	17.29	17.25	17.25	17.00	16.91	16.22	15.70	15.50	16.70
1992/93	15.65	15.41	15.38	15.38	14.92	13.81	13.58	13.50	13.50	12.94	12.75	12.75	14.15
1993/94	13.00	13.25	16.13	23.85	25.00	25.00	24.50	23.63	22.69	20.20	18.00	15.63	20.05
1994/95	14.30	14.25	14.05	13.63	13.50	13.50	13.63	13.50	13.69	14.70	17.00	17.40	14.45
1995/96	17.50	18.13	20.25	19.75	19.50	18.85	18.38	18.13	18.70	19.75	19.75	19.90	19.05
1996/97	21.00	21.00	20.50	19.94	19.75	20.31	21.25	21.50	21.50	21.31	21.20	20.63	20.82
1997/98	20.19	19.60	19.13	19.25	19.25	19.25	19.13	18.52	18.50	18.50	18.70	18.75	19.06
1998/99	18.60	17.75	17.75	17.88	17.88	17.81	17.31	16.48	16.22	15.66	15.15	15.13	16.97
1999/00	14.70	14.38	14.22	13.91									
							Southwest Louisiana						
Medium grain 2/:													
1976/77	13.70	12.85	13.00	12.30	11.90	11.25	11.70	12.20	14.10	15.60	15.50	15.25	13.30
1977/78	14.60	14.95	16.30	20.75	21.85	21.50	21.50	21.00	20.50	19.00	18.75	18.50	19.10
1978/79	16.90	14.50	14.50	14.50	14.65	14.15	14.00	14.85	16.50	16.50	16.50	17.50	15.40
1979/80	19.40	20.00	20.40	20.50	19.60	20.00	22.60	23.80	24.00	23.60	21.80	20.90	21.40
1980/81	20.50	20.80	21.60	24.40	26.40	27.00	27.10	27.50	27.55	28.00	28.00	27.75	25.55
1981/82	26.40	24.20	22.90	21.15	20.00	18.75	17.75	16.10	15.95	16.40	16.20	16.00	19.30
1982/83	16.50	16.50	16.45	16.65	17.75	17.30	16.50	16.50	16.50	17.10	17.50	17.50	16.90
1983/84	17.50	17.50	17.50	17.50	17.50	17.50	17.50	17.50	17.50	17.50	17.50	17.50	17.50
1984/85	16.00	16.00	15.50	15.50	15.50	15.50	15.50	16.00	16.20	16.31	16.50	16.25	15.90
1985/86	16.00	16.00	16.00	16.00	16.00	16.00	15.75	15.50	14.56	11.94	12.00	10.67	14.70
1986/87	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.50	11.25	11.13	11.21	11.18	10.45
1987/88	11.07	12.44	16.75	17.35	16.50	17.75	19.65	20.13	20.04	17.80	17.38	16.69	16.95
1988/89	16.40	16.19	14.50	14.50	14.00	13.90	13.75	13.50	13.44	14.46	14.63	15.67	14.60
1989/90	15.56	15.19	14.80	14.28	14.04	14.78	15.13	15.13	15.55	15.72	15.63	15.30	15.10
1990/91	14.75	13.88	13.56	13.50	13.50	13.65	14.94	15.06	15.88	16.25	16.50	16.35	14.80
1991/92	15.83	16.00	16.00	16.00	16.00	16.00	15.88	15.50	15.50	15.13	14.50	14.50	15.55
1992/93	14.40	14.00	14.50	14.05	13.83	13.38	13.00	12.75	12.38	11.94	12.00	12.00	13.20
1993/94	12.25	12.44	15.63	21.95	24.00	24.00	23.75	23.88	24.00	23.70	22.00	20.00	20.65
1994/95	18.30	15.88	15.00	15.00	14.00	13.80	14.16	14.38	14.38	14.70	14.75	14.55	14.90
1995/96	15.44	17.50	20.25	20.13	20.00	20.00	19.88	19.25	19.13	19.38	19.40	19.50	19.15
1996/97	19.50	19.50	19.25	19.25	19.00	18.81	19.19	19.25	19.25	19.25	18.40	19.00	19.14
1997/98	18.25	18.35	18.63	19.00	19.00	19.00	19.00	18.20	18.00	18.13	18.50	18.50	18.55
1998/99	18.35	18.75	19.00	19.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	19.59
1999/00	18.60	17.50	14.88	14.75									

See footnotes at end of table.

Continued--

Appendix table 23--Milled rice: Average price, f.o.b. mills, at selected milling centers 1/--Continued

Year and type	Aug.	Sept.	Oct.	Nov. 4/	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Simple average
						$/cwt, bagged							
						Arkansas							
Medium grain 2/:													
1976/77	15.10	14.25	14.20	14.20	13.40	13.25	13.25	13.40	14.40	15.75	15.75	15.75	14.40
1977/78	15.30	15.20	17.75	21.95	23.50	23.50	23.30	22.50	22.25	21.70	20.40	19.50	20.55
1978/79	18.95	16.90	16.00	16.00	15.65	15.20	15.40	16.25	17.00	17.00	16.50	18.70	16.65
1979/80	19.50	22.25	22.50	22.40	21.50	21.40	22.60	24.00	23.90	22.25	21.55	20.50	22.05
1980/81	20.60	21.30	22.50	24.00	25.75	26.10	25.75	26.70	27.40	28.00	28.00	27.50	25.30
1981/82	26.40	24.10	22.95	21.30	19.85	18.60	17.90	17.05	16.50	16.40	15.90	15.60	19.40
1982/83	16.10	16.50	16.10	16.65	17.75	17.10	16.50	16.50	16.60	17.10	17.50	17.50	16.80
1983/84	17.50	17.50	17.50	17.50	17.50	17.50	17.50	17.50	17.15	17.00	17.00	17.00	17.35
1984/85	16.88	16.69	16.35	16.22	16.13	15.75	16.25	16.44	16.30	16.25	16.25	16.13	16.30
1985/86	16.00	16.00	16.25	16.50	16.50	16.50	16.50	16.27	14.81	12.38	12.50	12.50	15.25
1986/87	12.33	11.60	12.00	12.00	12.00	12.00	12.63	12.63	12.63	12.34	12.25	12.25	12.20
1987/88	12.25	12.88	16.69	18.00	17.83	18.44	20.50	20.50	20.50	19.00	18.88	18.00	17.80
1988/89	17.30	16.25	14.75	15.00	15.00	14.70	14.75	14.75	14.81	15.25	15.44	16.92	15.40
1989/90	17.19	16.63	15.94	15.44	15.25	15.40	15.50	15.50	15.50	15.50	15.50	15.50	15.75
1990/91	15.13	14.75	14.50	14.50	14.75	14.75	15.75	15.75	15.83	16.63	17.00	17.00	15.55
1991/92	16.58	16.10	16.09	16.69	16.63	16.63	16.63	16.34	16.38	15.81	15.35	15.25	16.20
1992/93	15.50	15.41	15.38	15.38	14.92	13.81	13.58	13.70	13.75	13.38	13.25	13.25	14.30
1993/94	13.25	13.50	16.06	23.90	25.00	25.00	24.88	24.63	24.19	23.70	21.50	18.00	21.15
1994/95	15.90	15.44	14.98	14.13	14.00	13.80	13.78	13.75	13.94	14.25	14.69	14.95	14.47
1995/96	15.63	16.94	20.00	19.69	19.50	19.50	19.38	18.75	19.13	20.13	20.13	20.15	19.10
1996/97	20.13	19.95	18.75	18.50	18.50	18.50	18.75	19.50	19.38	19.06	19.00	18.25	19.02
1997/98	18.00	18.20	18.56	18.50	18.50	18.50	18.50	17.70	17.50	17.56	18.05	18.13	18.14
1998/99	18.13	18.69	19.00	19.00	19.38	19.50	19.38	19.00	19.00	19.00	19.25	19.13	19.04
1999/00	18.70	17.50	15.50	15.25									
						California							
Medium grain 3/:													
1976/77	16.80	16.80	16.60	16.60	16.60	16.60	16.60	16.60	16.60	17.00	17.30	17.40	16.80
1977/78	17.40	17.40	18.10	20.55	23.00	23.60	23.60	23.60	23.60	23.60	23.60	23.60	21.80
1978/79	21.50	20.55	20.10	19.75	19.75	19.75	18.25	18.40	19.50	20.75	21.00	21.00	20.00
1979/80	22.50	23.00	23.00	23.00	23.00	23.00	25.10	24.70	23.00	23.00	23.00	23.00	23.30
1980/81	23.00	23.20	24.75	25.00	26.75	30.00	30.00	30.00	30.00	30.00	30.00	30.00	27.70
1981/82	30.00	27.60	24.50	22.80	21.40	20.50	19.10	18.45	16.90	16.90	16.70	16.40	20.95
1982/83	16.25	16.10	15.55	15.50	15.50	16.50	16.00	16.00	16.00	15.90	15.95	15.75	15.90
1983/84	15.65	15.50	15.70	15.50	15.50	15.50	15.50	15.38	15.25	15.25	15.25	15.25	15.45
1984/85	15.25	15.25	15.25	15.25	15.25	15.25	15.25	15.25	15.25	15.25	15.25	15.25	15.25
1985/86	15.25	15.60	16.00	15.94	15.94	16.00	15.81	15.75	15.75	15.50	15.25	15.25	15.65
1986/87	15.00	14.50	13.75	12.63	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	13.00
1987/88	12.50	13.30	16.13	16.83	17.00	16.90	18.50	18.50	18.50	18.00	18.00	17.97	16.85
1988/89	17.85	17.75	16.95	15.75	15.75	15.50	15.50	16.38	16.25	17.00	17.25	18.08	16.65
1989/90	18.44	18.25	17.60	16.56	16.00	15.75	15.75	15.69	15.45	14.81	14.94	15.25	16.20
1990/91	14.81	14.88	14.35	15.25	15.25	15.42	16.25	16.25	16.25	18.13	18.25	17.92	16.10
1991/92	17.63	17.50	17.00	17.81	18.00	18.00	18.06	18.25	18.25	18.25	18.35	18.50	17.95
1992/93	18.25	18.25	18.25	18.25	18.25	18.25	18.25	18.10	17.50	17.50	17.30	17.00	17.95
1993/94	16.80	16.22	16.25	19.00	22.50	22.50	22.75	23.63	26.75	27.50	26.75	24.25	22.10
1994/95	21.10	19.44	18.50	18.31	18.13	17.03	16.75	16.63	16.63	16.63	16.63	16.63	17.70
1995/96	17.06	18.13	20.40	21.00	23.00	23.25	22.44	22.13	21.90	21.50	21.50	20.75	21.10
1996/97	20.75	20.50	20.13	20.00	19.88	19.25	19.00	19.00	19.00	19.00	19.00	19.00	19.54
1997/98	19.00	19.00	19.00	19.00	19.00	18.81	18.75	18.25	18.00	18.00	18.70	19.00	18.71
1998/99	19.80	20.69	21.88	21.20	21.75	21.69	21.50	21.60	26.25	22.25	24.32	25.25	22.35
1999/00	25.10	24.50	22.38	20.56									

See footnotes at end of table.

Continued--

Appendix table 23--Milled rice: Average price, f.o.b. mills, at selected milling centers 1/--Continued

Year and type	Aug.	Sept.	Oct.	Nov. 4/	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Simple average
						$/cwt, bagged							
						California							
Short grain 3/:													
1976/77	15.15	15.15	14.85	14.75	14.75	14.75	14.75	14.75	14.95	15.50	16.05	16.25	15.15
1977/78	16.25	16.25	16.65	19.20	22.00	22.00	22.00	22.00	22.00	22.00	22.00	22.00	20.35
1978/79	20.25	19.00	18.20	17.40	17.50	17.50	16.75	16.80	18.20	19.00	19.00	19.00	18.20
1979/80	20.50	21.00	21.00	21.00	21.00	21.00	23.00	23.00	23.00	23.00	23.00	23.00	21.95
1980/81	23.00	23.20	24.75	25.00	26.75	30.00	30.00	30.00	30.00	30.00	30.00	30.00	27.75
1981/82	30.00	28.25	25.75	23.90	22.00	22.00	20.25	19.50	18.25	18.25	18.25	18.10	22.05
1982/83	17.20	16.70	15.55	15.50	15.50	16.90	16.00	16.00	16.00	16.00	16.00	16.00	16.10
1983/84	15.80	15.50	15.70	15.50	15.50	15.50	15.50	15.38	15.25	15.25	15.25	15.25	15.45
1984/85	15.25	15.25	15.25	15.25	15.25	15.25	15.25	15.25	15.25	15.25	15.25	15.25	15.25
1985/86	15.25	15.60	16.00	15.94	15.94	16.00	15.81	15.75	15.75	15.50	15.25	15.25	15.65
1986/87	15.00	14.50	13.75	12.56	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	13.00
1987/88	12.50	13.30	16.13	16.83	17.00	16.90	18.50	18.50	18.50	18.00	18.00	18.00	16.85
1988/89	17.85	17.75	16.95	15.75	15.75	15.50	15.50	16.25	16.25	17.00	17.25	18.08	16.65
1989/90	18.19	18.25	17.60	16.56	16.00	15.60	15.75	15.69	15.45	14.81	14.94	15.25	16.20
1990/91	14.81	14.88	14.35	15.25	15.25	15.42	16.25	16.25	16.25	18.13	18.25	17.92	16.10
1991/92	17.63	17.40	17.00	17.81	18.00	18.00	18.06	18.25	18.25	18.25	18.25	18.25	17.95
1992/93	18.25	18.25	18.25	18.25	18.25	18.25	18.25	18.10	17.50	17.50	17.30	17.00	17.95
1993/94	16.80	16.22	16.25	19.00	22.50	22.50	22.75	23.63	26.75	27.50	26.75	24.25	22.10
1994/95	21.10	19.44	18.50	18.31	18.13	18.13	18.22	18.25	18.25	18.25	18.25	18.25	18.60
1995/96	18.75	20.13	21.80	23.00	24.17	24.75	24.75	23.63	23.50	23.50	23.50	22.00	22.80
1996/97	22.00	22.00	21.81	21.69	21.50	21.50	21.00	20.75	21.00	20.88	20.75	20.75	21.30
1997/98	20.75	20.75	20.75	20.75	20.75	20.56	20.50	19.80	19.50	19.50	20.20	20.50	20.36
1998/99	21.30	22.19	23.50	22.90	23.25	23.19	23.00	23.10	23.63	23.69	25.70	26.50	23.50
1999/00	26.50	26.00	23.63	21.56									

1/ Monthly average of the midpoint for reported low and high quotes. 2/ U.S. No. 2--broken not to exceed 4 percent. 3/ U.S. No. 1. 4/ Preliminary.

Source: Rice Market News, Agricultural Marketing Service, USDA.

Appendix table 24--Rice byproducts: Monthly average price, Southwest Louisiana 1/

Year and type	Aug.	Sept.	Oct.	Nov. 2/	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Simple average
						$/cwt, bagged 3/							
Milled second head:													
1975/76	9.25	9.75	9.75	9.00	8.10	6.90	6.95	6.75	7.75	8.00	8.25	8.45	8.25
1976/77	7.00	6.80	7.05	6.80	6.75	6.15	6.20	6.25	6.50	6.95	7.25	7.25	6.75
1977/78	6.75	6.95	7.15	7.95	8.50	8.50	9.00	9.50	9.50	9.25	9.25	9.25	8.45
1978/79	8.90	8.50	8.50	8.50	8.50	8.15	7.90	8.00	8.25	8.25	8.25	8.25	8.35
1979/80	8.25	8.45	9.00	9.50	9.50	10.10	11.00	11.90	12.50	12.50	12.50	12.25	10.60
1980/81	11.05	10.70	11.00	11.15	12.45	12.90	12.75	13.55	13.40	14.45	14.55	14.10	12.65
1981/82	13.00	11.90	11.00	11.00	11.00	10.60	10.00	8.60	9.25	10.00	10.00	10.00	10.55
1982/83	10.00	9.75	9.75	9.75	9.75	9.75	9.75	9.75	9.75	9.75	9.75	9.75	9.75
1983/84	9.75	10.25	10.25	10.25	10.25	10.25	10.25	10.81	10.20	10.00	10.00	10.00	10.20
1984/85	8.50	8.75	8.80	8.00	8.00	8.00	9.00	9.19	9.25	10.00	10.25	10.25	9.00
1985/86	10.25	10.25	10.17	10.00	10.00	10.00	10.25	10.25	8.81	7.75	7.75	7.75	9.45
1986/87	7.75	7.75	7.75	7.63	7.75	7.75	7.75	7.70	7.63	7.63	5.83	5.63	7.40
1987/88	5.73	6.05	7.00	7.54	7.50	7.63	7.65	7.75	7.75	7.75	7.88	8.25	7.40
1988/89	8.15	8.13	8.50	8.00	8.00	8.00	10.06	9.73	10.01	10.70	10.63	10.40	9.15
1989/90	9.94	9.63	9.01	8.09	8.00	8.00	8.25	8.50	8.50	8.50	8.50	8.40	8.65
1990/91	7.75	7.50	7.50	7.50	7.50	7.50	7.88	7.50	8.40	8.63	9.00	9.15	8.00
1991/92	8.75	8.50	9.19	9.50	9.50	9.50	9.13	8.75	8.78	8.75	9.00	9.00	9.00
1992/93	9.00	9.00	8.91	8.88	8.75	8.38	7.38	7.75	7.63	7.43	7.35	7.35	8.15
1993/94	7.35	7.35	7.71	8.05	8.25	8.25	8.13	8.19	9.00	8.70	9.00	9.00	8.25
1994/95	9.30	9.50	9.50	9.50	9.50	9.55	9.88	10.25	10.25	10.25	10.25	10.65	9.85
1995/96	11.00	11.13	11.80	12.00	12.17	13.10	13.44	13.25	13.00	13.00	13.13	13.65	12.55
1996/97	13.75	13.75	14.25	14.33	14.50	15.19	15.25	15.25	15.00	14.75	14.55	14.50	14.59
1997/98	13.94	13.75	13.50	13.00	13.00	13.00	13.00	13.00	13.13	14.25	14.25	14.25	13.51
1998/99	14.25	14.25	14.25	13.50	13.38	13.31	13.13	13.00	12.50	12.06	10.40	10.00	12.84
1999/00	10.00	9.63	8.75	8.75									
						$/ton 4/							
Rice bran, f.o.b. mills:													
1975/76	64.00	68.00	60.60	69.40	87.00	92.50	71.50	68.00	62.00	54.85	60.50	62.50	68.40
1976/77	68.50	71.00	68.00	73.10	73.30	71.20	74.75	66.10	54.00	51.75	45.50	44.50	63.45
1977/78	42.10	33.10	31.90	51.90	62.50	58.00	53.25	51.90	38.75	41.50	60.90	61.60	48.95
1978/79	47.60	34.40	38.50	64.50	72.85	67.50	65.60	52.80	38.90	41.60	52.50	62.50	53.25
1979/80	58.00	61.50	79.80	85.90	88.85	94.15	60.75	51.60	52.00	62.75	65.50	66.75	68.95
1980/81	76.90	84.70	86.40	95.50	N.Q.	101.90	73.60	59.10	57.50	60.00	71.60	69.15	76.05
1981/82	51.50	49.60	52.75	59.90	73.65	82.50	64.35	50.40	55.50	57.50	61.10	NQ	59.90
1982/83	52.80	53.00	54.00	77.65	85.00	77.50	52.15	47.25	59.65	70.30	61.25	NQ	62.80
1983/84	62.14	70.00	94.00	108.35	120.85	98.50	57.50	50.00	67.50	60.00	60.00	59.50	75.70
1984/85	69.17	49.50	45.13	53.75	68.75	85.00	67.50	53.25	40.50	45.67	45.00	47.50	55.90
1985/86	43.33	40.00	20.00	42.50	65.00	88.75	65.00	51.67	NQ	25.75	20.00	17.50	43.60
1986/87	16.25	23.80	26.50	34.00	53.13	50.00	35.63	28.38	23.50	20.63	18.80	17.00	29.00
1987/88	20.60	29.25	46.50	54.90	53.33	68.13	49.63	47.25	60.00	40.90	47.25	85.00	50.25
1988/89	64.00	58.13	63.50	63.75	70.67	71.40	52.25	64.13	54.63	45.71	47.00	49.17	58.70
1989/90	55.75	57.38	60.25	69.00	76.17	84.40	51.88	49.63	58.00	72.50	75.25	75.90	65.50
1990/91	72.00	52.38	51.50	51.88	55.67	66.70	51.75	48.63	56.30	46.75	50.25	57.50	55.10
1991/92	42.83	36.80	43.00	54.50	72.00	75.00	56.50	44.63	41.38	40.88	42.20	45.38	49.60
1992/93	42.80	38.25	41.13	60.70	75.50	79.25	52.83	51.50	49.38	31.50	40.00	43.88	50.55
1993/94	37.10	41.88	49.25	62.50	76.00	87.40	93.50	76.71	56.38	59.60	58.88	48.25	62.30
1994/95	52.30	49.13	46.30	49.38	52.00	53.50	41.38	34.13	31.63	31.20	34.88	45.70	43.45
1995/96	60.63	55.75	68.00	86.00	105.67	123.00	103.13	90.75	106.60	111.00	88.63	103.25	91.85
1996/97	95.75	93.00	85.13	82.25	94.00	101.63	80.13	57.70	57.25	64.00	78.50	67.50	79.74
1997/98	50.50	45.80	62.00	80.63	79.50	72.50	71.63	63.10	65.13	38.25	45.60	64.63	61.61
1998/99	53.20	32.50	32.63	32.60	48.00	60.25	45.50	30.40	39.63	37.00	28.40	26.25	38.86
1999/00	27.40	23.13	36.50	47.00									

See footnotes at end of table.

Continued--

Appendix table 24--Rice byproducts: Monthly average price, Southwest Louisiana 1/--Continued

Year and type	Aug.	Sept.	Oct.	Nov. 2/	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Simple average
							$/ton 4/						
Rice millfeed, f.o.b. mills:													
1975/76	24.65	32.20	30.50	28.25	40.25	48.10	41.25	28.10	17.50	17.85	23.70	33.35	30.50
1976/77	23.90	22.10	22.50	30.90	38.35	25.25	25.25	19.10	14.50	11.25	11.00	9.50	21.15
1977/78	9.85	8.90	7.00	15.50	18.50	15.75	12.40	12.40	9.90	11.70	15.50	15.50	12.75
1978/79	13.25	6.40	8.10	19.50	24.15	24.10	23.00	18.15	8.50	N.Q.	N.Q.	17.15	16.25
1979/80	20.35	19.25	25.90	30.25	40.65	45.65	18.15	13.50	11.00	11.25	11.10	15.25	21.85
1980/81	29.50	37.40	35.00	36.90	48.40	54.00	15.00	11.00	14.95	17.00	27.00	31.40	29.80
1981/82	22.60	10.90	17.75	22.00	30.65	29.75	16.50	13.15	13.40	15.40	19.40	N.Q.	19.25
1982/83	16.00	16.75	15.25	26.15	35.00	45.00	13.50	15.25	19.35	23.60	22.10	23.00	22.60
1983/84	24.00	25.38	33.30	42.13	61.67	66.25	22.50	24.75	31.20	21.25	25.50	27.20	33.75
1984/85	23.50	18.75	18.63	19.50	23.75	31.75	31.50	22.00	17.00	16.88	15.00	14.50	21.05
1985/86	13.00	13.00	8.00	15.38	21.88	35.38	NQ	19.50	20.83	8.50	5.00	4.25	15.00
1986/87	5.13	10.00	10.00	11.25	15.00	13.75	8.00	6.13	4.50	3.50	3.60	4.25	7.95
1987/88	8.50	10.38	22.25	22.90	21.50	28.25	17.38	18.83	22.50	16.00	19.50	40.00	20.70
1988/89	21.50	17.88	18.60	15.75	24.00	23.60	20.00	19.00	19.33	15.50	16.00	16.00	18.95
1989/90	17.13	16.75	14.00	22.63	23.67	27.70	14.50	14.63	16.70	23.63	25.00	25.00	20.10
1990/91	28.63	19.00	19.13	19.50	21.50	24.90	17.00	18.50	17.80	13.75	14.25	16.30	19.20
1991/92	12.17	11.20	13.38	19.88	39.50	37.13	17.50	14.63	14.75	14.13	14.90	16.13	18.80
1992/93	14.15	13.63	14.50	18.00	30.33	37.13	23.83	18.70	17.00	8.88	8.80	8.75	17.80
1993/94	10.50	11.75	12.63	19.70	26.67	44.00	50.63	40.63	27.13	26.20	25.88	21.13	26.40
1994/95	19.60	18.25	17.50	17.75	19.17	20.20	16.38	13.00	13.25	12.40	12.25	13.50	16.10
1995/96	15.63	15.38	20.70	35.13	48.67	66.00	50.50	35.88	42.70	43.50	33.75	41.38	37.45
1996/97	43.50	44.00	43.00	41.13	42.70	45.88	41.00	28.30	20.25	25.63	29.80	22.50	35.64
1997/98	20.75	20.00	24.88	29.50	31.60	32.00	30.50	26.20	24.63	15.00	14.00	18.13	23.93
1998/99	17.60	14.63	10.75	10.50	13.31	20.13	18.25	12.00	16.88	11.63	9.00	8.13	13.57
1999/00	6.30	6.50	8.00	11.75									

NQ = Not quoted.

1/ Monthly average of the midpoint for reported low and high quotes. 2/ November 1999 data are preliminary. 3/ U.S. No. 4 or better. 4/ Prices quoted as bulk.

Source: Rice Market News, Agricultural Marketing Service, USDA.

Appendix table 25--Brewers' prices: Monthly average price for Arkansas brewers' rice and New York brewers' corn grits

Year & state	Aug.	Sept.	Oct.	Nov. 1/	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Simple average
							$/cwt						
Arkansas 2/:													
1974/75	8.50	9.10	9.50	9.50	9.50	11.25	9.95	9.40	9.00	8.75	8.00	7.35	9.15
1975/76	7.10	7.40	7.50	6.60	6.20	6.25	5.75	5.80	5.80	5.85	5.85	5.75	6.30
1976/77	5.75	5.75	5.75	5.75	5.65	5.40	5.10	5.10	5.60	6.00	6.00	5.50	5.60
1977/78	5.50	5.50	5.50	5.50	6.50	6.90	8.00	9.55	9.10	9.00	9.00	8.70	7.40
1978/79	7.40	7.10	7.50	7.40	7.10	6.80	6.75	6.60	6.75	6.90	7.00	7.00	7.05
1979/80	7.05	7.30	7.90	8.25	8.50	9.00	9.40	9.65	9.75	9.75	9.75	9.75	8.85
1980/81	9.75	9.75	9.80	10.10	10.00	10.00	10.00	10.00	10.00	10.00	9.60	9.50	9.90
1981/82	9.30	9.00	8.55	8.25	8.25	8.20	7.60	7.40	7.30	7.00	7.00	6.80	7.90
1982/83	6.55	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50
1983/84	6.50	6.75	7.00	7.00	6.90	6.76	6.63	6.50	6.62	6.70	6.85	7.10	6.80
1984/85	7.25	7.30	7.30	7.30	7.30	7.30	7.30	7.30	7.15	7.00	6.81	6.75	7.15
1985/86	6.75	6.70	6.50	6.50	6.50	6.25	6.00	6.00	5.75	5.50	5.50	5.50	6.10
1986/87	5.19	5.00	4.81	4.75	4.63	4.63	4.20	4.20	4.20	4.20	4.11	3.75	4.45
1987/88	4.00	4.25	6.19	6.28	6.10	6.10	6.97	7.25	7.25	6.93	7.48	8.38	6.45
1988/89	8.50	8.69	8.75	8.75	8.75	8.60	10.43	10.20	10.40	11.00	11.00	10.54	9.65
1989/90	9.64	9.00	8.50	7.97	7.75	7.75	7.75	7.43	6.80	6.60	6.60	7.05	7.75
1990/91	7.01	6.11	6.10	6.45	6.23	6.04	6.65	7.10	7.93	8.00	8.00	8.00	7.00
1991/92	8.00	8.40	8.70	9.00	9.00	8.88	8.50	8.66	8.25	8.25	8.25	8.25	8.50
1992/93	8.25	8.25	8.25	7.70	7.29	7.19	6.96	6.88	6.41	6.25	6.00	6.04	7.10
1993/94	6.00	6.02	6.49	6.73	6.88	6.88	6.98	7.39	7.50	7.20	7.19	7.25	6.90
1994/95	7.35	7.22	7.15	7.25	7.25	7.80	9.59	8.94	8.29	8.16	8.56	9.71	8.10
1995/96	10.22	10.09	9.78	10.25	10.96	12.80	12.66	12.59	12.80	12.66	12.59	12.80	11.70
1996/97	12.88	13.13	13.50	14.56	15.50	15.47	15.19	15.03	14.84	14.41	14.40	14.16	14.40
1997/98	13.91	13.49	11.91	10.88	11.31	11.41	12.01	13.13	13.75	14.25	14.32	14.34	12.89
1998/99	14.18	13.75	13.25	13.10	12.88	12.88	13.00	12.75	11.56	10.84	8.80	8.06	12.09
1999/00	6.84	6.67	6.88	7.04									
New York 3/:													
1974/75	9.40	9.28	10.41	9.42	9.48	9.17	8.87	8.64	8.69	8.49	9.06	9.23	9.20
1975/76	9.88	9.77	8.77	8.28	8.17	7.94	8.04	8.46	8.76	8.95	9.14	9.20	9.80
1976/77	8.97	8.91	8.28	7.62	7.80	7.80	7.92	8.05	8.02	7.72	7.59	7.11	8.00
1977/78	7.06	6.80	6.99	7.18	7.27	7.16	7.32	7.39	7.94	8.13	8.38	8.00	7.45
1978/79	7.63	7.47	7.43	7.59	7.76	8.10	NA	NA	NA	NA	NA	NA	7.65
1979/80	NA	9.65	9.89	9.69	9.99	9.90	10.10	10.05	10.10	10.24	10.27	11.20	10.10
1980/81	11.60	12.11	12.26	12.74	12.42	12.44	12.60	12.64	12.72	12.42	12.57	12.85	12.45
1981/82	12.22	10.45	10.16	9.96	9.97	9.97	10.28	10.48	10.82	10.75	10.66	10.43	10.50
1982/83	9.91	9.75	9.60	9.74	9.78	10.07	10.52	10.82	11.35	11.32	11.58	12.06	10.55
1983/84	12.85	13.06	12.77	12.64	11.96	11.81	11.95	12.58	12.99	12.95	13.19	13.01	12.65
1984/85	12.90	12.64	11.49	11.33	11.03	11.20	11.50	11.86	11.42	11.45	11.54	11.46	11.65
1985/86	11.40	11.59	10.62	10.83	11.11	10.91	10.71	10.81	10.75	11.12	11.26	10.98	11.00
1986/87	10.30	9.84	9.85	9.84	9.46	9.40	9.20	9.42	9.60	10.02	9.97	9.48	9.70
1987/88	9.22	9.34	9.51	9.56	9.52	9.66	9.76	9.78	9.81	9.82	11.42	12.23	9.95
1988/89	11.67	11.50	11.56	11.37	11.54	11.47	11.32	11.56	11.37	11.99	11.47	11.54	11.55
1989/90	11.23	11.35	11.50	11.55	11.47	11.49	11.51	11.66	12.01	12.19	12.17	12.09	11.70
1990/91	11.83	11.61	11.62	11.63	11.60	11.61	11.71	11.70	11.78	11.52	11.39	11.29	11.60
1991/92	11.71	11.50	11.55	11.41	11.45	11.44	11.75	11.77	11.51	11.56	11.84	11.48	11.60
1992/93	11.25	11.30	11.21	11.29	11.25	11.20	11.18	11.44	11.65	11.63	11.49	11.77	11.40
1993/94	11.72	11.68	12.27	12.91	13.22	13.34	13.06	12.86	12.75	12.69	12.82	11.15	12.55
1994/95	11.05	11.08	11.07	11.06	11.11	11.18	11.18	11.27	11.31	11.36	11.73	11.99	11.30
1995/96	11.94	12.48	12.90	13.01	13.29	14.60	14.95	15.46	17.05	17.88	17.77	18.04	14.95
1996/97	19.31	17.95	14.78	14.37	13.77	13.97	14.28	14.61	14.53	14.26	13.97	13.79	14.97
1997/98	14.00	14.13	14.32	14.09	13.85	13.61	13.69	13.68	13.33	13.28	13.26	12.86	13.68
1998/99	12.21	12.17	12.48	12.66	12.50	12.72	12.83	13.06	12.81	12.77	12.79	12.31	12.61
1999/00	12.71	12.50	12.48	12.04									

1/ November 1999 data are preliminary. NA = Not available.

Sources: 2/ Rice Marketing News, Agricultural Marketing Service, USDA. 3/ Milling and Baking News.

Appendix table 26--U.S. monthly retail prices, long grain milled white rice, 1980-99

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual average 1/
							Cents per pound						
1980	48.4	48.8	48.9	51.1	51.0	52.1	52.3	51.8	51.7	51.9	52.0	53.9	51.2
1981	55.1	55.4	56.3	57.2	57.5	57.2	57.4	57.7	56.7	55.6	55.0	54.5	56.3
1982	54.5	54.7	51.6	50.4	50.8	49.9	49.6	49.4	49.1	48.8	49.7	48.2	50.6
1983	48.6	47.3	46.8	47.0	46.8	46.9	47.5	46.8	47.5	47.3	47.4	47.9	47.3
1984	48.4	48.5	47.6	47.1	47.1	47.7	48.4	47.9	47.8	48.0	47.9	47.2	47.8
1985	47.5	47.2	47.6	47.5	47.2	46.7	47.1	47.3	47.3	46.8	46.6	45.0	47.0
1986	45.6	45.5	45.3	45.3	45.1	44.6	45.3	44.3	43.4	43.6	43.2	43.4	44.6
1987	41.6	41.1	39.4	39.8	39.5	39.3	39.1	40.3	39.5	39.5	40.5	42.2	40.2
1988	44.6	46.2	46.8	48.8	49.7	49.2	50.7	50.6	50.3	47.5	48.5	48.4	48.4
1989	48.9	49.5	48.8	48.2	48.5	48.6	51.4	50.9	52.0	51.3	49.7	50.4	49.9
1990	50.1	47.6	50.2	49.7	49.6	49.4	49.4	49.7	50.5	49.7	50.7	49.1	49.6
1991	49.4	49.2	49.8	50.2	50.2	50.6	50.3	49.4	50.6	50.8	51.7	51.7	50.3
1992	51.6	51.5	51.5	52.2	52.4	52.0	53.2	53.7	54.2	54.3	53.6	52.5	52.7
1993	52.6	53.0	52.5	52.2	51.8	51.8	52.7	50.7	49.4	49.5	49.0	49.5	51.2
1994	51.5	54.3	55.6	57.5	56.2	55.5	56.6	54.6	53.4	53.4	54.1	53.4	54.7
1995	52.3	51.8	51.1	51.5	51.8	51.8	51.9	52.6	52.3	53.5	53.5	55.3	52.5
1996	55.2	55.2	55.6	53.8	54.8	53.7	53.7	54.1	54.0	55.5	55.2	54.6	54.6
1997	56.0	56.5	56.4	55.8	56.3	55.8	56.4	56.9	56.4	56.8	57.2	57.5	56.5
1998	54.6	54.7	54.5	54.4	54.1	53.6	54.0	53.6	54.4	54.2	53.9	54.3	54.2
1999	55.1	54.0	54.4	54.8	55.1	55.3	55.0						

Weighted average retail price for U.S. uncooked long grain rice, various package sizes and locations. 1/ Simple average.

Source: Bureau of Labor Statistics, U.S. Department of Labor.

Appendix table 27--Thailand milled rice prices, nominal price quotes, f.o.b. Bangkok 1/

Month	100 percent Grade B	5 percent parboiled	5 percent broken	15 percent broken	35 percent broken	A.1 Special 2/
			$/metric ton			
1984/85:						
August	268	262	NA	NA	NA	NA
September	243	241	NA	NA	NA	NA
October	237	230	NA	NA	NA	NA
November	208	198	NA	NA	NA	NA
December	206	195	NA	NA	NA	NA
January	201	190	NA	NA	NA	NA
February	195	186	NA	NA	NA	NA
March	197	187	NA	NA	NA	NA
April	197	187	NA	NA	NA	NA
May	202	187	NA	NA	NA	NA
June	196	180	NA	NA	NA	NA
July	186	175	NA	NA	NA	NA
Average	211	201	NA	NA	NA	NA
1985/86:						
August	193	179	NA	NA	NA	NA
September	197	181	NA	NA	NA	NA
October	213	180	NA	NA	NA	NA
November	202	176	NA	NA	NA	NA
December	202	175	NA	NA	NA	NA
January	191	158	NA	NA	NA	98
February	188	142	NA	NA	NA	97
March	186	139	NA	NA	NA	100
April	178	131	NA	NA	NA	97
May	177	135	NA	NA	NA	98
June	179	140	NA	NA	NA	101
July	185	153	NA	NA	NA	107
Average	191	157	NA	NA	NA	NA
1986/87:						
August	191	173	186	173	NA	122
September	179	161	173	161	NA	113
October	180	162	175	161	NA	113
November	180	157	174	159	136	105
December	172	153	167	154	132	100
January	178	153	173	162	137	107
February	193	168	187	176	153	120
March	204	179	198	189	167	131
April	204	183	199	189	167	133
May	202	189	198	187	166	136
June	198	189	196	186	167	142
July	196	187	191	180	164	148
Average	190	171	185	173	154	122

See footnotes at end of table.

Continued--

Appendix table 27--Thailand milled rice prices, nominal price quotes, f.o.b. Bangkok 1/--Continued

Month	100 percent Grade B	5 percent parboiled	5 percent broken	15 percent broken	35 percent broken	A.1 Special 2/
			$/metric ton			
1987/88:						
August	208	207	204	193	181	168
September	255	257	250	240	223	195
October	272	268	267	257	228	210
November	260	247	254	242	224	189
December	261	236	256	242	216	168
January	297	279	292	276	253	207
February	311	295	306	294	262	214
March	299	285	294	282	256	213
April	294	282	288	276	256	220
May	262	252	257	247	235	211
June	273	262	269	259	248	226
July	279	268	274	265	252	232
Average	273	261	267	256	236	204
1988/89:						
August	274	264	269	260	NA	217
September	279	268	273	261	246	221
October	279	266	273	263	249	226
November	278	265	272	263	248	227
December	265	259	260	251	237	223
January	268	259	264	255	243	231
February	276	353	271	262	251	235
March	282	264	277	267	253	233
April	298	273	293	283	266	239
May	316	294	311	299	281	246
June	337	309	331	314	NA	244
July	359	332	351	329	289	246
Average	292	284	287	275	256	232
1989/90:						
August	337	314	332	309	NA	221
September	328	290	321	302	257	205
October	314	275	304	279	234	183
November	279	248	270	240	207	166
December	279	253	272	252	219	174
January	284	258	276	256	218	170
February	307	266	300	276	229	176
March	297	259	289	271	215	169
April	284	255	276	253	210	164
May	268	231	260	239	196	151
June	264	226	255	234	184	140
July	265	229	256	235	183	142
Average	292	259	284	262	214	172

See footnotes at end of table.

Continued--

Appendix table 27--Thailand milled rice prices, nominal price quotes, f.o.b. Bangkok 1/--Continued

Month	100 percent Grade B	5 percent parboiled	5 percent broken	15 percent broken	35 percent broken	A.1 Special 2/
			$/metric ton			
1990/91:						
August	268	243	260	236	192	149
September	269	251	259	237	192	150
October	290	265	281	256	210	163
November	280	255	272	248	202	153
December	272	243	264	239	194	147
January	311	277	303	273	222	165
February	336	301	326	297	242	186
March	321	285	311	281	232	175
April	295	272	286	263	221	176
May	298	365	288	262	219	231
June	302	280	293	262	212	163
July	313	287	303	275	225	174
Average	296	277	287	261	213	169
1991/92:						
August	309	286	298	273	228	184
September	300	277	290	271	225	193
October	284	265	277	253	223	191
November	283	262	274	253	218	185
December	276	258	268	250	218	184
January	286	266	277	258	226	188
February	287	267	278	259	224	189
March	286	263	277	258	225	186
April	287	262	279	262	226	186
May	282	251	272	253	217	178
June	278	243	268	249	216	171
July	289	251	279	260	224	173
Average	287	263	278	258	222	184
1992/93:						
August	279	249	270	250	221	182
September	266	244	255	238	212	176
October	260	247	250	233	204	172
November	262	245	253	235	206	172
December	265	240	256	238	207	162
January	270	238	262	240	208	166
February	267	234	254	233	203	172
March	243	229	230	211	189	161
April	216	211	206	191	175	153
May	194	188	185	172	158	145
June	199	190	189	177	162	147
July	209	205	201	186	171	149
Average	244	227	234	217	193	163

See footnotes at end of table.

Continued--

Appendix table 27--Thailand milled rice prices, nominal price quotes, f.o.b. Bangkok 1/--Continued

Month	100 percent Grade B	5 percent parboiled	5 percent broken	15 percent broken	35 percent broken	A.1 Special 2/
			$/metric ton			
1993/94:						
August	218	214	210	196	179	156
September	216	213	206	192	177	158
October	272	222	257	237	207	162
November	337	264	323	288	242	167
December	330	272	315	281	234	156
January	376	272	354	305	241	151
February	390	266	363	313	238	155
March	330	248	274	240	207	155
April	331	238	269	242	205	157
May	259	235	235	213	190	160
June	232	228	216	200	186	165
July	237	251	226	211	197	178
Average	294	244	271	243	209	160
1994/95:						
August	259	271	250	237	222	200
September	267	265	260	246	233	210
October	272	262	262	249	238	216
November	272	263	264	249	236	215
December	270	259	262	250	237	222
January	282	264	275	265	252	232
February	289	266	282	270	255	226
March	292	269	285	272	253	222
April	290	269	282	271	254	226
May	299	274	291	279	262	239
June	333	305	326	314	297	276
July	353	341	347	335	321	297
Average	290	276	282	270	255	232
1995/96:						
August	346	343	340	327	310	288
September	368	354	360	346	322	285
October	393	373	386	372	340	293
November	354	342	346	334	315	296
December	347	337	340	326	307	278
January	372	355	364	350	321	271
February	377	357	367	348	307	256
March	373	350	360	344	301	260
April	342	316	328	310	272	245
May	347	318	331	312	272	244
June	360	339	342	322	275	240
July	370	347	358	335	281	229
Average	362	344	352	335	302	265

See footnotes at end of table.

Continued--

Appendix table 27--Thailand milled rice prices, nominal price quotes, f.o.b. Bangkok 1/--Continued

Month	100 percent Grade B	5 percent parboiled	5 percent broken	15 percent broken	35 percent broken	A.1 Special 2/
			$/metric ton			
1996/97:						
August	346	330	336	314	265	213
September	341	331	332	311	264	216
October	324	330	313	293	250	208
November	325	327	315	293	248	206
December	330	325	320	298	253	205
January	367	334	356	332	277	218
February	359	321	347	320	270	226
March	341	315	328	302	261	231
April	319	301	306	285	252	220
May	335	315	324	300	257	215
June	335	324	323	299	256	221
July	332	327	321	296	256	215
Average	338	323	327	304	259	216
1997/98:						
August	296	314	285	265	237	209
September	280	304	271	254	231	203
October	275	280	266	249	224	192
November	261	261	252	237	213	181
December	274	269	267	255	228	193
January	299	279	294	278	236	186
February	307	290	297	279	235	187
March	306	284	296	278	235	193
April	326	296	316	296	249	199
May	328	299	318	299	248	197
June	338	315	330	311	256	209
July	337	315	324	304	255	211
Average	302	292	293	275	237	197
1998/99:						
August	334	318	323	305	264	229
September	332	317	322	304	269	241
October	306	298	298	282	264	252
November	278	275	271	260	248	234
December	282	281	275	261	245	232
January	308	303	300	283	252	234
February	287	279	280	263	234	212
March	263	254	256	239	213	197
April	242	240	236	221	199	184
May	252	249	244	229	202	184
June	262	251	254	240	217	200
July	259	248	253	241	220	209
Average	284	276	276	261	236	217
1999/00:						
August	253	249	246	237	216	204
September	235	256	229	217	198	186
October	223	257	217	205	186	170
November 3/	234	268	228	215	193	173
Average 3/	236	257	230	218	198	183

NA= Not available. 1/ Simple average of weekly price quotes. Includes export premium, export tax, and cost of bags. Packed in bags of 100 kg net.
2/ 100-percent broken. 3/ Preliminary.

Appendix table 28--Milled rice export prices, major exporters, 1997/98-1999/00 1/

Country/month	5 percent brokens	10 percent brokens	15 percent brokens	20 percent brokens	25 percent brokens	35 percent brokens	5 percent parboiled
				$/metric ton			
Vietnam:							
1997/98:							
August	253	241	231	NQ	223	NQ	NQ
September	253	245	233	NQ	225	NQ	NQ
October	237	233	224	NQ	211	203	NQ
November	241	236	231	NQ	218	211	NQ
December	270	260	255	NQ	243	235	NQ
January	262	256	248	NQ	236	231	NQ
February	255	250	245	NQ	233	225	NQ
March	280	271	262	NQ	249	242	NQ
April	295	290	280	NQ	270	260	NQ
May	NQ	NQ	NQ	NQ	NQ	NQ	NQ
June	304	299	294	NQ	259	254	NQ
July	305	298	291	NQ	258	250	NQ
Average 2/	269	262	254	NQ	239	235	NQ
1998/99:							
August	315	305	295	NQ	270	NQ	NQ
September	311	301	291	NQ	279	NQ	NQ
October	295	288	281	NQ	271	NQ	NQ
November	278	273	265	NQ	126	NQ	NQ
December	258	253	245	NQ	238	NQ	NQ
January	245	240	230	NQ	220	NQ	NQ
February	239	233	228	NQ	215	NQ	NQ
March	228	223	217	NQ	204	NQ	NQ
April	221	216	211	NQ	196	NQ	NQ
May	229	224	219	NQ	204	NQ	NQ
June	238	231	226	NQ	215	NQ	NQ
July	230	225	220	NQ	214	NQ	NQ
Average 2/	257	251	244	NQ	221	NQ	NQ
1999/00:							
August	230	225	220	NQ	215	NQ	NQ
September	218	211	206	NQ	198	NQ	NQ
October	201	196	191	NQ	186	NQ	NQ
November	216	211	206	NQ	195	NQ	NQ
Average 2/	216	211	206	NQ	199	NQ	NQ
India:							
1997/98:							
August	300	283	271	NQ	255	NQ	315
September	300	280	270	NQ	255	NQ	315
October	290	274	248	NQ	233	NQ	308
November	280	270	250	NQ	235	NQ	290
December	278	268	250	NQ	238	NQ	290
January	273	263	250	NQ	238	NQ	285
February	270	260	250	NQ	235	NQ	280
March	277	272	257	NQ	242	NQ	280
April	280	275	260	NQ	245	NQ	268
May	280	275	260	NQ	245	NQ	280
June	283	274	260	NQ	249	NQ	280
July	288	278	265	NQ	254	NQ	283
Average 2/	286	276	263	NQ	252	NQ	282

See footnotes at end of table.

Continued--

Appendix table 28--Milled rice export prices, major exporters, 1997/98-1999/00 1/--Continued

Country/month	5 percent brokens	10 percent brokens	15 percent brokens	20 percent brokens	25 percent brokens	35 percent brokens	5 percent parboiled
				$/metric ton			
India:							
1998/99:							
August	290	280	265	NQ	250	NQ	285
September	290	280	265	NQ	250	NQ	285
October	290	280	265	NQ	250	NQ	285
November	281	271	255	NQ	244	NQ	283
December	268	260	246	NQ	231	NQ	274
January	264	253	244	NQ	228	NQ	280
February	276	263	255	NQ	238	NQ	290
March	283	270	258	NQ	243	NQ	287
April	274	263	250	NQ	236	NQ	278
May	268	260	250	NQ	240	NQ	270
June	263	256	243	NQ	231	NQ	263
July	260	255	240	NQ	230	NQ	260
Average 2/	276	266	253	NQ	239	NQ	278
1999/00:							
August	261	255	240	NQ	230	NQ	260
September	265	255	240	NQ	230	NQ	260
October	265	255	240	NQ	230	NQ	265
November	269	259	248	NQ	238	NQ	270
Average 2/	265	256	242	NQ	232	NQ	264
Pakistan:							
1997/98:							
August	NQ	NQ	NQ	NQ	NQ	NQ	NQ
September	240	NQ	NQ	220	NQ	NQ	NQ
October	234	228	NQ	NQ	210	NQ	NQ
November	NQ	230	224	219	214	NQ	NQ
December	265	255	245	240	233	NQ	NQ
January	265	256	243	238	231	NQ	NQ
February	NQ	256	243	240	234	NQ	NQ
March	272	272	254	254	246	NQ	NQ
April	NQ	285	260	260	255	NQ	NQ
May	NQ	NQ	NQ	NQ	NQ	NQ	NQ
June	NQ	NQ	NQ	NQ	NQ	NQ	NQ
July	NQ	NQ	NQ	NQ	NQ	NQ	NQ
Average 2/	255	255	245	239	232	NQ	NQ
1998/99:							
August	NQ	NQ	NQ	NQ	NQ	NQ	NQ
September	NQ	255	NQ	252	245	NQ	NQ
October	NQ	273	258	258	250	NQ	NQ
November	NQ	255	239	239	230	NQ	NQ
December	NQ	246	229	229	223	NQ	NQ
January	NQ	240	215	215	210	NQ	NQ
February	NQ	NQ	220	220	215	NQ	NQ
March	NQ	NQ	222	216	208	NQ	NQ
April	NQ	NQ	213	208	203	NQ	NQ
May	NQ	NQ	223	219	211	NQ	NQ
June	NQ	248	238	225	221	NQ	NQ
July	NQ	250	240	230	225	NQ	NQ
Average 2/	NQ	252	230	228	222	NQ	NQ
1999/00:							
August	NQ	250	240	230	225	NQ	NQ
September	NQ	241	231	221	213	NQ	NQ
October	NQ	209	198	194	188	NQ	NQ
November	NQ	195	190	185	180	NQ	NQ
Average 2/	NQ	224	215	208	202	NQ	NQ

NQ = No quote.

1/ Simple average of weekly price quotes. 2/ Simple average of monthly prices. All prices F.O.B. vessel, corresponding home port.

Source: All weekly prices reported in the Creed Rice Market Report, Creed Rice Co., Inc., Houston, Texas.

Appendix table 29--Milled rice: Average cost and freight ARAG quotations 1/

Monthly/ marketing year	Milled white rice		Brown rice	Parboiled	
	U.S. no. 2 4 percent container, FAS 2/	Thai 100 percent grade B, bulk 3/	U.S. no. 2 brown, 4/73	U.S. no. 1 brown, 4/88	Thai milled premium quality 3/
			$/metric ton		
1983/84:					
August	535	345	381	NA	NA
September	535	368	372	NA	NA
October	530	351	375	NA	NA
November	520	329	381	NA	NA
December	518	317	380	NA	NA
January	518	315	375	NA	NA
February	529	315	375	NA	NA
March	534	316	371	NA	NA
April	531	315	359	NA	NA
May	529	314	358	NA	NA
June	529	321	355	NA	NA
July	513	337	352	NA	NA
Average	527	329	370	NA	NA
1984/85:					
August	500	333	348	NA	NA
September	485	317	344	NA	NA
October	493	301	343	NA	NA
November	496	272	344	NA	NA
December	496	265	344	NA	NA
January	NA	NA	NA	NA	NA
February	496	255	338	NA	NA
March	496	253	338	NA	NA
April	496	241	339	NA	NA
May	496	244	342	NA	NA
June	495	244	340	NA	NA
July	490	228	338	NA	NA
Average	495	268	341	NA	NA
1985/86:					
August	478	237	328	NA	NA
September	475	240	323	NA	NA
October	475	245	320	NA	NA
November	473	253	318	NA	NA
December	463	243	315	NA	NA
January	450	238	315	NA	NA
February	455	235	323	NA	NA
March	455	234	325	NA	NA
April	383	223	236	259	NA
May	325	222	212	254	NA
June	291	229	186	218	NA
July	286	230	190	215	NA
Average	417	236	282	236	NA
1986/87:					
August	296	241	193	215	NA
September	285	230	192	215	NA
October	300	226	192	219	NA
November	303	219	191	220	NA
December	249	215	183	211	NA
January	224	221	179	205	NA
February	224	233	176	203	NA
March	224	244	172	201	NA
April	224	246	176	203	243
May	255	241	191	210	255
June	270	238	198	220	245
July	277	235	195	220	240
Average	261	232	186	212	246

See footnotes at end of table.

Continued--

Appendix table 29--Milled rice: Average cost and freight ARAG quotations 1/--Continued

Monthly/ marketing year	Milled white rice		Brown rice	Parboiled	
	U.S. no. 2 4 percent container, FAS 2/	Thai 100 percent grade B, bulk 3/	U.S. no. 2 brown, 4/73	U.S. no. 1 brown, 4/88	Thai milled premium quality 3/
			$/metric ton		
1987/88:					
August	327	251	215	231	280
September	NA	294	266	290	325
October	441	315	361	386	365
November	417	299	368	405	371
December	411	309	364	391	355
January	446	340	397	424	NA
February	496	360	499	521	420
March	450	340	474	507	NA
April	417	339	443	476	365
May	331	312	343	387	353
June	339	317	338	381	NA
July	353	328	347	372	383
Average	402	317	368	398	357
1988/89:					
August	313	319	313	336	360
September	299	326	298	319	290
October	309	321	292	305	NA
November	310	320	287	299	NA
December	288	310	283	291	NA
January	289	321	278	282	NA
February	292	326	281	286	NA
March	294	329	283	291	NA
April	312	349	299	320	NA
May	328	357	324	346	NA
June	356	389	341	367	NA
July	360	403	364	387	NA
Average	313	339	303	319	325
1989/90:					
August	351	381	343	380	NA
September	363	370	325	369	NA
October	324	359	307	369	NA
November	314	331	284	346	NA
December	312	322	283	338	NA
January	338	328	313	336	NA
February	356	350	336	352	NA
March	348	343	327	346	NA
April	341	325	315	338	NA
May	338	309	309	331	318
June	336	313	309	331	314
July	333	307	303	325	308
Average	338	336	313	347	313
1990/91:					
August	306	311	295	317	320
September	289	310	276	300	325
October	287	330	271	294	325
November	318	321	280	300	319
December	317	304	282	314	315
January	331	358	305	327	400
February	350	384	334	384	401
March	364	363	325	397	383
April	373	335	321	397	360
May	380	344	333	400	359
June	389	347	345	397	370
July	378	350	344	397	373
Average	340	338	309	352	354

See footnotes at end of table.

Continued--

Appendix table 29--Milled rice: Average cost and freight ARAG quotations 1/--Continued

Monthly/ marketing year	Milled white rice		Brown rice	Parboiled	
	U.S. no. 2 4 percent container, FAS 2/	Thai 100 percent grade B, bulk 3/	U.S. no. 2 brown, 4/73	U.S. no. 1 brown, 4/88	Thai milled premium quality 3/
			$/metric ton		
1991/92:					
August	364	357	338	395	382
September	373	341	333	391	369
October	379	323	335	395	350
November	381	322	354	401	346
December	380	319	347	397	345
January	379	322	342	394	350
February	378	325	325	375	344
March	363	326	321	362	342
April	343	324	308	350	336
May	333	327	325	331	342
June	313	320	278	317	319
July	328	329	274	314	335
Average	359	328	323	369	347
1992/93:					
August	332	328	279	318	330
September	336	319	301	320	321
October	333	307	277	321	315
November	316	302	287	319	315
December	305	304	275	317	307
January	288	307	264	313	315
February	276	313	252	306	314
March	263	289	239	298	305
April	248	269	230	284	288
May	243	246	240	277	266
June	245	242	219	273	268
July	261	250	253	281	280
Average	287	290	260	302	302
1993/94:					
August	272	255	289	283	280
September	290	258	265	292	285
October	375	311	335	378	NA
November	525	375	446	492	390
December	551	365	463	518	395
January	506	417	442	506	384
February	503	426	437	498	394
March	476	389	401	485	365
April	416	360	354	446	375
May	380	322	329	409	329
June	355	272	282	366	303
July	312	272	270	318	318
Average	413	335	359	416	347
1994/95:					
August	299	298	261	288	338
September	325	306	287	311	343
October	312	308	278	305	343
November	312	315	279	303	345
December	313	317	280	305	345
January	310	315	279	300	342
February	310	328	274	323	345
March	303	338	268	298	346
April	306	331	273	296	345
May	336	338	300	304	345
June	395	378	335	350	NA
July	380	402	340	364	NA
Average	325	331	288	312	344

See footnotes at end of table.

Continued--

Appendix table 29--Milled rice: Average cost and freight ARAG quotations 1/--Continued

Monthly/ marketing year	Milled white rice		Brown rice	Parboiled	
	U.S. no. 2 4 percent container, FAS 2/	Thai 100 percent grade B, bulk 3/	U.S. no. 2 brown, 4/73	U.S. no. 1 brown, 4/88	Thai milled premium quality 3/
			$/metric ton		
1995/96:					
August	375	406	339	358	NA
September	382	407	358	379	NA
October	442	439	399	421	NA
November	419	418	378	402	NA
December	398	393	353	389	NA
January	391	414	357	382	NA
February	386	417	353	378	NA
March	393	415	357	384	NA
April	400	385	371	400	NA
May	408	384	378	413	NA
June	420	401	386	423	NA
July	432	412	390	434	NA
Average	404	407	368	397	NA
1996/97:					
August	440	391	402	440	NA
September	427	383	374	435	NA
October	414	367	387	430	NA
November	408	363	383	424	NA
December	412	360	382	388	NA
January	419	397	389	437	NA
February	438	405	419	460	NA
March	435	391	419	457	NA
April	435	363	416	455	395
May	435	378	410	452	NA
June	441	386	405	448	NA
July	431	379	393	439	NA
Average	428	380	398	439	395
1997/98:					
August	411	346	380	430	375
September	409	316	366	419	NA
October	422	321	375	406	NA
November	424	306	384	406	NA
December	429	325	376	412	NA
January	424	346	384	413	NA
February	NA	NA	NA	NA	NA
March	410	NA	361	395	NA
April	408	NA	357	391	NA
May	415	373	368	397	385
June	419	382	377	395	395
July	412	389	360	382	391
Average	417	345	372	404	387
1998/99:					
August	389	385	353	375	383
September	397	385	350	371	385
October	397	356	347	370	374
November	395	316	347	374	333
December	396	329	347	380	336
January	389	348	346	379	345
February	375	347	342	375	343
March	361	325	323	365	330
April	346	292	314	364	314
May	329	296	309	363	312
June	321	309	305	356	317
July	321	310	293	354	310
Average	368	333	331	369	340
1999/00:					
August	317	301	279	358	312
September	309	287	266	359	326
October	296	269	269	359	324
November	289	279	263	357	331
Average 4/	303	284	269	358	323

NA = Not available.

1/ ARAG = composite of ports near Rotterdam. 2/ FAS, container, Gulf port quote. All other prices are C & F ARAG. 3/ Thailand prices changed to bulk quote on May 15, 1985. Prior to this date Thai prices were quoted by the bag. 4/ Preliminary.

Source: Rice Market News, Agricultural Marketing Service, USDA.

Appendix table 30--World rice supply and utilization

Year	Area harvested	Yield 1/	Production 2/		Exports 3/	Total use 4/	Ending stocks 5/	Stocks-to-use ratio 6/
			Rough	Milled				
	Million hectares	Mt/ha	---Million metric tons---					
1961/62	115.8	1.9	215.6	147.3	6.3	149.3	8.5	5.7
1962/63	119.7	1.9	228.1	155.1	7.3	151.1	12.5	8.3
1963/64	121.6	2.0	248.3	169.0	7.7	165.3	16.3	9.8
1964/65	125.4	2.1	265.5	180.7	8.2	179.8	17.2	9.6
1965/66	124.0	2.0	253.5	172.9	7.9	172.0	18.1	10.5
1966/67	125.7	2.1	262.1	179.0	7.8	178.5	18.6	10.4
1967/68	127.0	2.2	276.9	188.9	7.2	186.1	21.3	11.4
1968/69	128.6	2.2	285.8	194.9	7.5	191.6	24.5	12.8
1969/70	131.4	2.2	295.2	201.1	8.2	199.2	26.4	13.3
1970/71	132.7	2.4	312.5	213.0	8.6	210.6	28.8	13.7
1971/72	134.8	2.3	316.6	215.8	8.7	216.5	28.0	12.9
1972/73	132.7	2.3	306.2	208.9	8.4	213.2	23.8	11.2
1973/74	136.3	2.4	333.8	227.6	7.7	222.6	28.8	12.9
1974/75	137.8	2.4	331.1	225.7	7.3	226.5	28.0	12.3
1975/76	142.9	2.5	357.4	243.1	8.4	232.3	38.8	16.7
1976/77	141.4	2.5	346.8	235.8	10.6	236.8	37.8	16.0
1977/78	143.4	2.6	368.7	250.6	9.6	244.2	44.2	18.1
1978/79	143.6	2.7	385.4	262.4	11.9	252.5	54.1	21.4
1979/80	141.2	2.7	376.6	256.8	12.5	257.2	53.7	20.9
1980/81	144.4	2.7	397.0	270.0	12.7	275.0	48.5	17.7
1981/82	144.4	2.8	408.3	277.9	11.5	283.1	43.3	15.3
1982/83	140.5	3.0	418.3	285.0	11.5	284.8	43.5	15.3
1983/84	144.6	3.1	450.9	306.9	12.1	302.6	47.9	15.8
1984/85	144.1	3.2	464.9	316.7	11.5	309.0	55.6	18.0
1985/86	144.8	3.2	467.3	318.0	11.7	319.1	54.4	17.1
1986/87	144.8	3.2	464.6	316.0	12.8	319.8	50.7	15.9
1987/88	141.6	3.3	464.0	314.6	11.2	320.5	44.8	14.0
1988/89	146.1	3.4	489.7	331.4	14.0	327.4	48.8	14.9
1989/90	146.5	3.5	508.1	343.9	11.7	338.2	54.5	16.1
1990/91	146.6	3.6	520.5	352.1	12.2	347.4	59.1	17.0
1991/92	147.4	3.6	525.2	354.7	14.3	356.7	57.1	16.0
1992/93	146.4	3.6	527.0	355.7	14.9	357.7	55.1	15.4
1993/94	144.9	3.6	526.9	355.4	16.3	358.1	52.4	14.6
1994/95	147.4	3.7	540.2	364.5	20.9	366.6	50.4	13.7
1995/96	148.1	3.7	551.3	371.4	19.7	371.3	50.4	13.6
1996/97	149.8	3.8	563.7	380.4	18.8	379.6	51.3	13.5
1997/98	151.3	3.8	574.0	386.7	27.3	383.3	54.6	14.2
1998/99 7/	152.2	3.8	581.5	391.7	24.3	389.0	57.4	14.7
1999/00 8/	153.8	3.8	589.1	396.8	23.2	394.4	59.8	15.2

1/ Yields are based on rough production. 2/ Production is expressed on both rough and milled basis; stocks, exports, and utilization are on a milled basis.
3/ Exports quoted on calendar year basis. Trade data have been adjusted since July 1993 to exclude Intra-EC trade for the years 1980 to the present.
4/ For countries for which stock data are not available, utilization estimates represent apparent utilization, i.e., they include annual stock level adjustments.
5/ Stocks data are based on an aggregate of different market years and should not be construed as representing world stock levels at a fixed point in time. Stocks data are not available for all countries and exclude the former USSR, North Korea, parts of Eastern Europe, and Vietnam. China s reported rice stocks are government-held stocks only and exclude privately-held stocks. 6/ Stocks-to-use represents the ratio of marketing year ending stocks to total utilization.
7/ Preliminary. 8/ Forecast as of November 1999.

Source: World Grain Situation and Outlook, Foreign Agricultural Service, USDA.

Appendix table 31--World rice production and stocks: Selected countries or regions 1/

Country or region	Crop year 2/ 1987/88	1988/89	1989/90	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/00 3/
	Million metric tons												
Production:													
Bangladesh	23.1	23.3	26.8	26.8	27.4	27.5	27.1	25.3	26.5	28.3	28.3	28.7	29.3
Burma	11.4	12.5	13.5	13.7	12.8	13.4	15.1	16.0	17.0	15.5	15.3	16.0	16.5
China	173.9	169.1	180.1	189.3	183.8	186.2	177.7	175.9	185.2	195.1	200.7	198.7	201.4
India	85.3	105.7	110.4	111.4	112.0	109.3	120.5	121.8	119.4	122.0	123.5	127.1	128.3
Indonesia	41.7	44.7	45.2	44.7	48.2	48.2	46.6	49.7	51.1	49.4	49.2	50.8	50.8
Japan	13.3	12.4	12.9	13.1	12.0	13.2	9.8	15.0	13.4	12.9	12.5	11.2	11.5
Philippines	8.7	9.2	8.9	9.9	9.1	9.5	9.9	10.5	11.2	11.2	10.0	10.3	11.4
South Korea	7.6	8.4	8.1	7.7	7.4	7.3	6.4	6.9	6.4	7.1	7.4	6.9	7.1
Pakistan	4.9	4.8	4.8	4.9	4.9	4.7	6.0	5.2	6.0	6.5	6.5	7.0	7.2
Taiwan	2.4	2.3	2.4	2.3	2.3	2.1	2.2	2.1	2.1	1.9	2.0	1.9	2.0
Thailand	18.4	21.3	20.6	17.2	20.4	19.9	19.2	21.4	21.8	20.7	23.5	22.8	23.3
Vietnam	17.4	18.2	19.4	18.8	22.2	21.2	24.3	24.6	26.8	27.3	28.9	30.3	30.0
Subtotal	408.1	431.9	453.1	459.8	462.5	462.5	464.8	474.2	486.9	497.9	507.9	511.6	518.6
Australia	0.8	0.8	0.8	0.7	1.1	1.0	1.1	1.1	1.0	1.4	1.3	1.4	1.3
Brazil	11.8	11.1	8.0	10.0	10.1	9.9	10.5	11.2	10.0	9.5	8.6	11.5	10.0
European Union	1.9	2.0	2.1	2.4	2.3	2.2	2.0	2.0	2.1	2.6	2.7	2.6	2.7
Egypt	2.3	2.1	2.1	3.2	3.4	3.9	4.2	4.6	4.4	4.9	5.4	4.1	4.7
All others	33.3	34.5	34.9	37.3	38.6	39.4	37.2	38.1	39.0	39.7	39.8	41.8	42.2
Total non-U.S.	458.2	482.4	501.0	513.4	518.0	518.9	519.8	531.2	543.4	555.9	565.7	573.0	579.5
United States	5.9	7.3	7.0	7.1	7.2	8.1	7.1	9.0	7.9	7.8	8.3	8.5	9.6
World total	464.0	489.7	508.1	520.5	525.2	527.0	526.9	540.2	551.3	563.7	574.0	581.5	589.1
Ending stocks 4/:													
Total foreign	43.8	47.9	53.6	58.3	56.2	53.8	51.5	49.5	49.3	50.4	53.7	56.7	58.2
United States	1.0	0.9	0.9	0.8	0.9	1.3	0.9	0.9	1.1	0.9	0.9	0.7	1.6
World total	44.8	48.8	54.5	59.1	57.1	55.1	52.4	50.4	50.4	51.3	54.6	57.4	59.8

1/ Production is rough basis, but ending stocks are milled basis. 2/ World rice harvest stretches almost 18 months and timing varies widely across countries and hemispheres. 3/ Projected as of November 1999.
4/ Stocks are based on an aggregate of different local marketing years, and should not be construed as representing world stock levels at a fixed point in time. In addition, stocks data are not available for all countries.

Source: World Grain Situation and Outlook and World Agricultural Production, Foreign Agricultural Service, USDA.

Appendix table 32--World rice trade (milled basis): Exports and imports of selected countries or regions

Country or region	Calendar year											
	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999 1/	2000 1/
	Thousand metric tons											
Exports:												
United States	2,967	2,420	2,197	2,107	2,644	2,794	3,073	2,624	2,292	3,165	2,750	3,000
Argentina	44	97	75	207	276	215	327	365	530	589	525	500
Australia	450	470	450	511	540	570	519	562	651	556	700	700
Burma	456	186	176	185	223	619	645	265	15	94	75	100
China	315	326	689	933	1,374	1,519	32	265	938	3,734	2,500	2,750
Taiwan	68	79	229	188	101	117	200	90	71	50	50	0
European Union	239	271	391	376	153	185	323	318	372	346	350	350
Egypt	32	85	159	209	133	262	150	75	150	75	0	0
Guyana	41	51	54	114	122	183	203	262	286	250	300	310
India	400	505	711	563	625	600	4,201	3,549	1,954	4,491	2,750	1,500
Indonesia	104	50	0	60	469	225	0	0	0	0	0	0
Pakistan	789	904	1,297	1,358	937	1,399	1,592	1,677	1,982	1,800	2,000	2,000
Thailand	6,036	3,938	3,988	4,776	4,798	4,738	5,931	5,281	5,216	6,367	6,100	5,800
Uruguay	260	288	260	327	451	396	470	597	640	639	725	700
Vietnam	1,383	1,670	1,048	1,914	1,765	2,222	2,308	3,040	3,327	3,776	4,200	4,100
Other	335	365	335	254	304	381	1,019	726	375	1,348	1,283	1,406
World total	13,919	11,705	12,059	14,082	14,915	16,425	20,993	19,696	18,799	27,280	24,308	23,216
Imports:												
Bangladesh	583	113	24	15	0	175	1,566	655	44	2,499	1,800	1,000
Brazil	147	493	772	456	831	1,098	987	786	845	1,457	850	1,100
Canada	111	154	186	174	182	190	214	225	240	239	240	240
China	1,042	57	67	93	112	959	1,964	832	326	261	200	400
Cuba	164	238	264	198	397	252	316	389	267	334	375	400
Eastern Europe	169	145	160	220	213	133	187	200	247	250	240	247
European Union 2/	561	500	481	480	444	725	762	952	844	787	700	750
Hong Kong	384	363	418	418	478	360	352	349	350	350	350	0
Indonesia	385	77	192	650	22	1,120	3,011	1,029	808	6,081	3,900	3,000
Iran	1,248	1,102	750	1,195	1,161	645	1,633	1,344	973	500	650	900
Iraq	448	388	269	548	647	64	92	243	684	610	700	700
Ivory Coast	386	263	169	309	384	187	387	291	470	520	550	500
Japan	23	11	34	17	107	2,473	29	446	546	479	725	750
North Korea	21	27	194	10	112	53	683	195	272	250	300	250
Malaysia	378	298	367	468	385	317	402	573	645	593	650	675
Mexico	189	148	173	377	275	242	245	307	289	295	360	365
Nigeria	164	224	296	440	382	300	450	350	731	900	900	850
Peru	237	233	340	359	336	220	285	437	216	230	200	200
Philippines	228	538	91	6	215	0	277	768	814	2,187	1,200	900
Saudi Arabia	525	547	533	625	859	698	615	814	660	775	750	800
Senegal	432	332	433	333	396	252	402	604	575	600	600	600
South Africa	292	295	360	360	431	402	634	481	573	525	550	575
Sri Lanka	338	139	208	338	267	39	25	394	349	168	150	175
Syria	74	101	123	83	137	136	203	158	228	160	200	220
Turkey	221	203	146	313	309	252	451	341	274	232	250	350
U.A. Emirates	60	65	65	65	75	80	85	88	102	90	150	150
Yemen	NA	NA	NA	169	131	172	68	158	184	121	150	150
Russia	185	100	100	500	127	48	125	405	284	200	300	300
Other	4,195	3,318	3,361	3,587	3,561	3,242	3,765	4,011	4,250	4,196	4,430	4,721
Unaccounted 3/	729	1,233	1,483	1,276	1,939	1,591	778	1,871	1,709	1,391	1,888	1,948
World total	13,919	11,705	12,059	14,082	14,915	16,425	20,993	19,696	18,799	27,280	24,308	23,216

NA = Not available.

1/ Projected as of November 1999. 2/ EU rice trade has been adjusted since July 1993 to exclude intra-EU trade for the years 1980 to the present. 3/ This represents exports not accounted for in reports from importing countries. Because this is recurring, it is taken into account in the assessment of the year ahead.

Source: World Grain Situation and Outlook, Foreign Agricultural Service, USDA.

Appendix table 33--U.S. rice exports by type 1/

Crop year	Regular milled 2/	Brown	Par-boiled	Brokens	Rough	Products 2/	Total 3/
				1,000 metric tons			
1977/78	1,315.2	264.5	502.5	87.1	184.1	NA	2,353.4
1978/79	1,416.6	313.7	627.1	20.8	125.8	NA	2,504.0
1979/80	1,537.4	540.3	598.4	40.1	75.8	NA	2,792.0
1980/81	1,011.7	1,366.7	781.7	18.0	18.8	NA	3,196.9
1981/82	976.9	571.1	1,000.9	12.7	262.4	NA	2,823.9
1982/83	993.2	402.7	846.5	5.9	26.0	NA	2,274.3
1983/84	972.7	379.4	821.8	37.6	146.8	NA	2,358.4
1984/85	1,010.0	192.0	630.8	46.8	145.3	NA	2,024.9
1985/86	950.7	308.8	523.8	80.1	75.2	NA	1,938.6
1986/87	1,541.9	277.9	659.7	5.7	371.9	NA	2,857.1
1987/88	1,280.4	201.6	642.9	152.9	52.6	NA	2,330.4
1988/89	1,424.1	356.2	834.4	81.4	179.3	1.4	2,876.8
1989/90	1,164.6	353.9	943.9	65.3	72.3	0.8	2,600.8
1990/91	872.5	480.9	823.3	42.7	218.5	1.5	2,439.3
1991/92	751.9	357.2	776.5	74.4	287.2	2.4	2,249.7
1992/93	924.3	375.8	937.8	147.2	248.2	3.0	2,636.4
1993/94	1,047.1	482.9	816.7	127.7	165.7	3.4	2,643.5
1994/95	1,415.1	307.2	924.1	73.0	839.1	3.8	3,562.2
1995/96	1,203.5	412.7	725.2	46.8	484.6	4.9	2,877.7
1996/97	936.9	420.4	723.5	51.1	577.5	4.2	2,713.6
1997/98	848.9	509.1	594.0	63.9	1,184.4	4.4	3,204.6
1998/99	817.6	599.9	518.5	54.3	1,168.1	9.4	3,167.8

1/ Shipments reported on a product-weight basis. 2/ Not reported separately until 1988/89. 3/ Categories may not sum to totals due to overlapping classifications.

Source: Foreign Agricultural Service, USDA.

Appendix table 34--U.S. rice exports by program 1/

Fiscal year	PL 480 2/	Section 416	Food for Progress	CCC African relief exports	CCC Credit/ credit guarantees programs	EEP 3/	Export programs 4/	Exports outside specified export programs	Total U.S. rice exports 5/	Export programs as a share of total exports
					---1,000 metric tons---					Percent
1975	747	0	0	0	48	0	795	1,419	2,214	36
1976	509	0	0	0	60	0	569	1,315	1,883	30
1977	676	0	0	0	15	0	691	1,570	2,261	31
1978	502	0	0	0	50	0	552	1,645	2,197	25
1979	442	0	0	0	42	0	484	1,849	2,333	21
1980	500	0	0	0	168	0	668	2,191	2,859	23
1981	320	0	0	0	452	0	772	2,225	2,997	26
1982	332	0	0	0	14	0	346	2,430	2,776	12
1983	429	0	0	0	328	0	757	1,452	2,209	34
1984	366	0	0	49	571	0	986	1,226	2,212	45
1985	500	0	0	6/ 180	359	0	1,219	689	1,908	64
1986	411	0	0	0	476	23	910	1,327	2,237	41
1987	370	60	0	0	636	28	1,094	1,318	2,412	45
1988	338	29	0	0	443	120	931	1,194	2,125	44
1989	355	0	0	0	826	20	1,201	1,049	2,250	53
1990	276	0	0	0	663	0	939	1,562	2,501	38
1991	210	4	0	0	183	76	472	1,944	2,416	20
1992	229	0	16	0	220	358	823	1,456	2,279	36
1993	199	0	137	0	235	278	850	1,860	2,710	31
1994	222	0	10	0	155	46	433	2,001	2,434	18
1995	196	0	14	0	321	113	644	3,119	3,763	17
1996	182	0	12	0	215	23	432	2,390	2,822	15
1997	116	0	14	0	7/ 90	0	220	2,340	2,560	9
1998	184	0	11	0	7/ 520	0	715	2,595	3,310	22
1999 8/	536	0	48	0	7/ 198	0	782	2,294	3,076	25

1/ Quantities based on information supplied by the export trade and may not completely reflect exports made under these programs. 2/ Titles I, II, and III. 3/ Sales, not shipments. 4/ Adjusted for estimated overlap between CCC export credit and EEP shipments. 5/ Product-weight basis. 6/ Estimated. 7/ Registrations, not actual shipments. 8/ Preliminary.

Contacts: Stacey Rosen (202-694-5164) for food aid programs and Karen Wright (202-720-1346) for export credit guarantees.

Sources: Food aid data for fiscal 1975 through 1995 are from the Economic Research Service "Data Base". Food aid data from 1996 to 1999 are from USDA s Foreign Agricultural Service. Historic credit guarantee data are from Farm Service Agency and Export Credits (Foreign Agricultural Service), USDA.

Appendix table 35--Top-10 U.S. rice export markets 1/

	1998/99		1997/98		1996/97		1995/96		1994/95		1993/94	
Rank	Country	Exports	Country	Exports	Country	Exports	Country	Exports	Country	Exports	Country	Exports
						1,000 metric tons						
1	Brazil	398.0	Mexico	318.9	Mexico	266.8	Mexico	262.0	Turkey	366.3	Japan	508.4
2	Japan	298.3	Japan	249.7	Turkey	227.6	Turkey	220.6	Brazil	311.7	Saudi Arabia	181.4
3	Mexico	250.0	Colombia	207.1	Japan	220.5	Japan	193.0	Mexico	260.8	Mexico	172.1
4	Haiti	221.8	Haiti	178.7	Canada	164.5	Haiti	178.1	Iran	179.4	Canada	139.2
5	Canada	171.5	Canada	174.5	Saudi Arabia	160.3	Canada	165.3	Saudi Arabia	173.6	Republic of South Africa	112.5
6	Peru	119.3	Saudi Arabia	121.3	Haiti	146.6	Republic of South Africa	153.0	Haiti	172.2	Iran	108.4
7	Saudi Arabia	106.4	Peru	119.8	Republic of South Africa	119.2	Saudi Arabia	149.5	Canada	156.5	Senegal	90.0
8	United Kingdom	102.7	Ecuador	112.6	United Kingdom	101.9	Netherlands	108.7	Netherlands	156.3	United Kingdom	83.5
9	Turkey	89.3	Dominican Republic	108.7	Jordan	87.9	Iran	85.8	Republic of South Africa	125.3	Netherlands	79.9
10	Republic of South Africa	81.2	Turkey	101.3	Switzerland	79.6	Costa Rica	84.4	Peru	82.0	Haiti	76.0
	Sub-total	1,838.5	Sub-total	1,692.6	Sub-total	1,574.9	Sub-total	1,600.3	Sub-total	1,984.1	Sub-total	1,551.4
	Total exports	2,757.0	Total exports	2,783.8	Total exports	2,495.0	Total exports	2,687.5	Total exports	3,324.1	Total exports	2,524.8

1/ August-July crop year. Exports are reported on a milled basis. Note: Major revisions on historical data.

Source: Foreign Agricultural Service, USDA.

Appendix table 36--U.S. rice imports by origin, market years 1988/89 to 1998/99

Country of origin	1988/89	1989/90	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99
						Metric tons					
Thailand	114,951	118,454	132,241	149,560	164,559	178,697	188,595	203,918	228,796	214,364	239,936
India	6,971	11,405	11,916	8,003	15,541	13,775	16,073	21,546	22,037	37,797	29,325
Pakistan	680	758	994	1,140	2,927	4,174	6,344	4,233	4,565	7,569	7,128
Vietnam	0	0	0	0	0	3,032	16,204	40	44,577	19,810	1,324
China	0	42	2	12	14	7,455	103	1,314	663	95	12,964
Italy	543	642	729	1,426	1,241	2,325	3,515	3,240	3,535	3,786	3,860
Argentina	0	0	0	0	0	0	0	0	7,286	41	0
Uruguay	0	0	0	0	0	0	0	0	1,281	3,854	0
Egypt	0	0	0	0	0	0	0	0	0	0	5,284
Other 1/	9,324	7,564	8,550	7,617	8,988	17,274	1,822	3,421	4,727	3,846	22,713
Total	132,469	138,823	154,430	167,746	193,256	219,277	232,553	236,362	316,804	291,067	332,534

Milled-equivalent basis.

1/ Primarily Spain, Guyana, Singapore, and Hong Kong. Includes some transshipments.

Source: Bureau of the Census, Department of Commerce.

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