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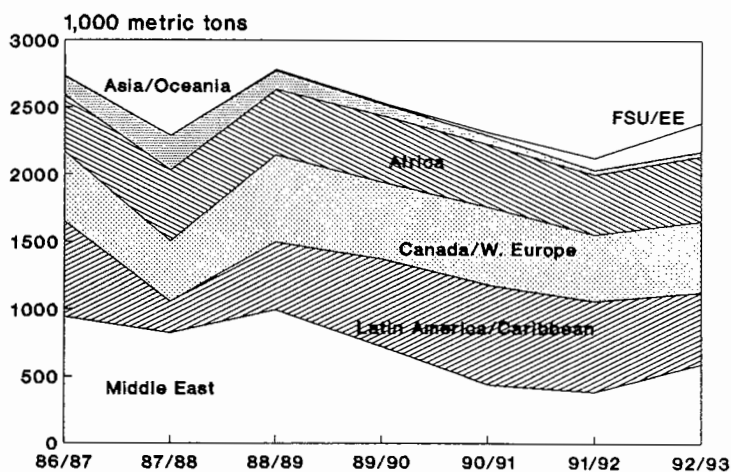
RS-67  
July 1993

# Rice

## Situation and Outlook Yearbook

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### U.S. Exports of Rice and Products



U.S. Census Data; August-July marketing year basis.  
1992/93 ERS forecast.

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### Report Coordinator

Janet Livezey

### Data Coordinator

Jenny Gonzales (202) 219-0840

### Economic Contributors

Janet Livezey (202) 219-0840  
Randy Schnepf (202) 219-0826  
Fred Crook (202) 219-0610

### Editor

Dixie Lee

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### Rice Conversions

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

## Summary

### ***U.S. 1993 Rice Production Forecast Down; Beginning Supplies Remain High***

Although 1993 U.S. production is forecast lower than a year ago, carryin stocks and imports are both projected up. Imports are continuing their steady climb. Larger carryin stocks are a result of near-record 1992 production. Total 1993/94 U.S. rice supplies are projected down marginally from a year ago to 210.4 million hundredweight (cwt). If realized, this would be the third highest level on record.

U.S. 1993 rice production is forecast to decrease 6 percent from a year earlier to 168 million cwt. The forecast downturn in output is caused primarily by a projected decrease in harvested acreage. This reflects a 5 percent acreage reduction program (ARP), compared to the 0 percent ARP in 1992, and relatively low prices at planting time.

Long grain production is expected down about 9 percent and medium/short grain up marginally. Increased water availability in California spurred higher medium grain acreage. Larger California acreage is offsetting medium-grain acreage downturns in other States.

Domestic food use of rice is forecast to continue its steady growth, boosting total domestic use and residual to 100.5 million cwt. U.S. exports are forecast to rise slightly to 80 million cwt, benefiting from large U.S. supplies and competitive prices.

With supplies expected down and use forecast up, carryout stocks for 1993/94 are projected to decrease to 29.9 million cwt, 17 percent below 1992/93. The stocks-to-use ratio for 1993/94 is expected to be 16.6 percent, down from 20.3 percent the previous year.

Large world supplies are expected to pressure world and U.S. prices in 1993/94. U.S. rough rice is forecast to range between \$4.50 and \$6.00 per cwt in 1993/94, compared with \$5.90 to \$6.00 in 1992/93.

World 1993/94 rice production and stocks are forecast to drop from 1992/93. Changes in government policies in China are expected to result in a 5 percent drop in production. However, most of these changes will have little impact on world trade and prices. Abundant rice supplies outside of China, particularly among the major foreign exporters, will assure strong competition in 1993/94.

## **U.S. Outlook for 1993/94**

### ***U.S. Production Forecast Down***

U.S. 1993 rice production is forecast to decrease 6 percent from a year earlier to 168 million hundredweight (cwt).

Long grain production is expected down about 8 percent and medium/short grain up 1 percent (Appendix Table 1).

The forecast downturn in long grain output from last year is mostly caused by a projected decrease in harvested acreage. Factors contributing to this decline include a 5 percent acreage reduction program (ARP), compared to the 0 percent ARP in 1992, and relatively low prices at planting time.

Increased water availability in California spurred the increase in medium grain acreage in that State. Larger California acreage is offsetting medium grain acreage downturns in other States.

Yields for both long and medium/short grain rice are expected lower in 1993. Projected yields are derived from a simple linear trend fit for 1963-92. The National Agricultural Statistics Service will issue its first estimate of 1993 yields based on survey data on August 11.

### ***Acreage Decreases in Most States***

USDA's June acreage report indicates that U.S. rice producers plan to harvest 2.97 million acres in 1993, 5 percent less than in 1992 (Appendix Table 9). Acreage decreases are expected in all States except California. Long grain harvested acreage is forecast down 7 percent and medium/short grain up 2 percent.

Arkansas rice acreage continues to dominate the U.S. total, accounting for 45 percent of projected 1993 harvested acreage for all rice and nearly 54 percent for long grain rice. Harvested area is forecast down 3.6 percent from a year ago.

Medium and short grain rice are grown principally in California. With the 6-year drought officially over, water supplies are adequate in most growing areas. California's medium/short grain acreage is forecast to expand to 54 percent of the U.S. total, up from 50 percent a year ago. California's rice acreage is forecast up 11.7 percent.

Harvested acreage for Louisiana, Texas, Mississippi, and Missouri are projected lower than a year ago because of the higher ARP and relatively low prices at planting. Area in Louisiana is expected down 9.7 percent; Texas, down 15.1 percent; Mississippi, down 10.9 percent; and Missouri, down 10.7 percent.

### ***Condition of Crop Looks Good***

Heavy April rainfall throughout most of the southern rice-growing region got planting off to a slow start. However, conditions since then have steadily improved. Condition ratings of the 1993 rice crop as of July 19 were 64 percent good and 36 percent fair compared with 43 percent good, 50 percent fair, 6 percent poor, and 1 percent excellent on June 8.

Crop development continues to lag with 17 percent headed compared with 28 percent last year and a 24 percent average. Harvest will be at least 2 weeks late in some areas due to the late planting. Texas' ratoon crop is expected down because of the delay in spring planting.

### ***Supplies Forecast Down From Last Year***

Total 1993/94 U.S. rice supplies are projected down marginally from a year ago to 210.4 million cwt. If realized, this would be the third highest on record. Although 1993 U.S. production is forecast lower than a year ago, carryin stocks and imports are both projected up. Larger carryin stocks are a result of near-record 1992 production. Imports are continuing their steady climb upward.

### ***Total Use Continues To Surge***

Domestic food use of rice is forecast to continue its steady growth, boosting total domestic use and residual to 100.5 million cwt. U.S. exports are forecast to rise slightly to 80 million cwt, benefiting from large U.S. supplies and competitive U.S. prices.

### ***Stocks Expected Down***

With expected lower supplies and higher use, carryout stocks for 1993/94 are forecast to decrease to 29.9 million cwt, 17 percent below 1992/93. The stocks-to-use ratio for 1993/94 is expected to be 16.5 percent, down from 20.3 percent the previous year.

### ***World Prices To Pressure U.S. Prices***

Large world supplies combined with relatively weak global demand are expected to pressure world prices in 1993/94 and in turn to squeeze U.S. prices. Even with tighter ending stocks, low world prices will keep U.S. prices from rising. U.S. rough rice is forecast to range between \$4.50 and \$6.00 per cwt in 1993/94 compared with \$5.90 to \$6.00 in 1992/93.

## **The Current Situation**

### ***Near-Record U.S. Supplies in 1992/93***

U.S. 1992/93 rice supplies are projected up 13 percent from a year ago to 212.4 million cwt. This is the highest since 1986/87 when record stocks contributed significantly to record supplies.

Whereas large stocks elevated supplies in 1986/87, near-record U.S. production boosted supplies in 1992/93. U.S. 1992 rice production increased 14 percent from a year earlier to 179.1 million cwt. This is the largest U.S. rice crop since 1981 when outturn was 183 million cwt. Increased production in 1992 is due to greater acreage and higher yields compared with 1991.

Imports and carryin stocks are the other components of total domestic rice supplies. Rice imports are forecast at a re-

cord 6 million cwt, continuing their steady climb upward. Carryin stocks are estimated at 27.3 million cwt.

### ***Record Total Use and Domestic Use Projected***

Total U.S. rice use, exports plus domestic use and residual, are forecast at a record high in 1992/93. Total use is expected to reach 176.5 million cwt.

U.S. domestic use (food, seed, and brewers' use) and residual (unreported use, processing losses, and estimating errors) is projected at a record 97.5 million cwt.

Food use (about 72 percent of total domestic use and residual) continues to show steady growth. Both total and per capita domestic consumption of U.S. rice are forecast up. Changing tastes and preferences of the U.S. population to more grain-based foods has spurred growth, but much of this increase can be attributed to large increases in the Asian and Hispanic segments of the U.S. population. Per capita consumption of rice by Asian- and Hispanic-Americans far exceeds the U.S. average. A large share of this consumption, however, has been supplied by imports of the preferred aromatic rices such as Thai jasmine.

Although food use continues to grow at a steady rate, brewers' use (about 15 percent of total domestic and residual use) has started to decline. Domestic beer sales have slowed over the past decade and premium beer sales have been off. Rice is mostly used in the premium beers.

Rice seed use is a function of acres planted and an average seeding rate. Seed use in 1992/93, used for planting the 1993 crop, is estimated at 3.8 million cwt.

### ***U.S. Rough Rice Prices Plummet***

The increase in U.S. rice supplies and a substantial downturn in international prices put downward pressure on U.S. prices for rough rice for most of the marketing year. Recently, U.S. prices have strengthened because of an increase in export activity, slightly higher Thai prices, and a later and smaller-than-earlier-projected 1993 U.S. crop.

Rice prices at the farm level are forecast to range between \$5.90 and \$6.00 per cwt in 1992/93, well below the previous year's \$7.58. Except for 1986/87, the season-average price has not been this low since the early 1970's. The 1991/92 price of \$7.58 per cwt was the highest since the marketing loan went into effect in 1985/86.

### ***Stocks Expected To Build***

Despite a projected rise of U.S. exports and continued strong domestic use, growth in supplies is forecast to exceed growth in use. Carryout stocks for 1992/93 are expected to increase to 35.9 million cwt, 32 percent above 1991/92. The stocks-to-use ratio for 1992/93 is expected to be 20.3 percent, up from 17 percent for the previous year.

## U.S. Exports Up in 1992/93

U.S. exports for 1992/93 are forecast at 79 million cwt, up almost 19 percent from 1991/92. U.S. prices have remained competitive with Thai prices since mid-November 1992. From the end of November 1992, through May 1993, the U.S. price premium of Number 2, 4-percent long grain rice, FOB Gulf port, over Thai 100 percent, grade B, FOB Bangkok, has tracked at its lowest level of the past 4 marketing years. (See Figure 1). This is expected to produce the highest marketing year export total since 1988/89 when 85.9 million cwt was exported.

Mexico is expected to end the 1993/94 marketing year as the U.S.'s top rice export destination with estimated imports from the U.S. in excess of 250,000 tons (combined rough and milled). In 1991/92 Saudi Arabia was the U.S.'s top import market for rice, taking nearly 170,000 tons. This year Mexico, the Netherlands, Saudi Arabia, and Turkey are expected to approach or exceed 200,000 tons.

Figure 1

### U.S. December-May Premium Lowest in 4 Years

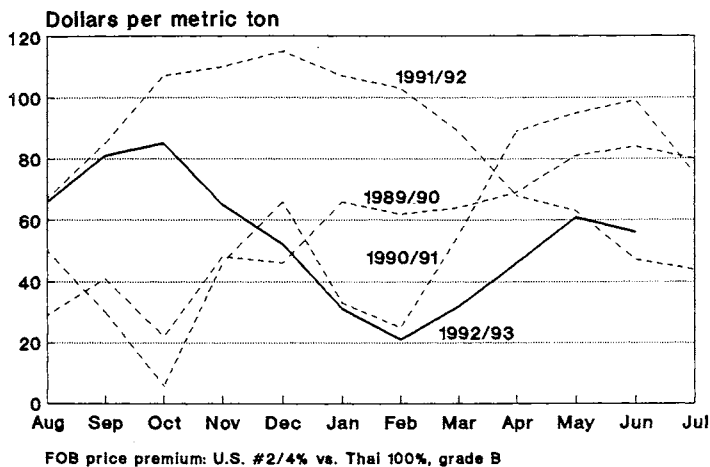
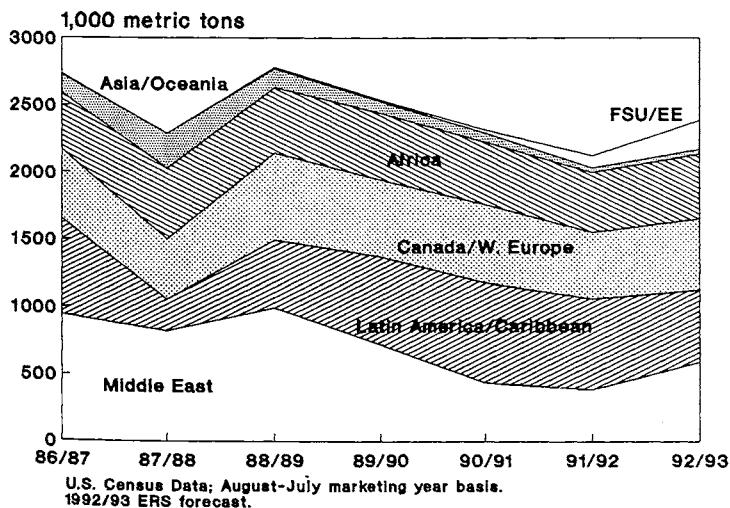


Figure 2

### U.S. Exports of Rice and Products



Despite traditionally higher export prices than its competitors, the U.S. rice industry has a demonstrated ability to adapt to changing circumstances in the international rice market. During the late 1980's, the Middle East was the U.S.'s principal rice export destination, taking an average of 36 percent of all U.S. rice exports from 1986/87 to 1988/89. However, the sudden loss of the Iraqi market in 1990 hurt U.S. rice exports as they fell over 8 percent to 70.9 million cwt in 1990/91, and a further 6 percent to only 66.4 million cwt in 1991/92.

Brazil's emergence as a major buyer of U.S. rice partially offset the loss of the Iraqi market during 1990/91 and 1991/92, placing the Latin American and Caribbean market as the top U.S. rice export destination. However, in 1992/93 Brazil has turned to the Mercosur partners, Uruguay and Argentina, for its import needs. Despite strong rice exports to Mexico, the loss of the Brazilian market and disappointing sales to Honduras and Jamaica are expected to reduce U.S. 1992/93 rice exports to Latin America and the Caribbean to their lowest since 1988/89.

The Middle East is expected to regain its former place as the U.S.'s top rice export destination. Large exports to Turkey and Saudi Arabia, plus EEP sales to Israel, Lebanon, and Jordan are expected to boost Middle Eastern imports of U.S. rice to the highest in 4 years.

U.S. sales to Canada, Western Europe, Caribbean (Haiti and Trinidad & Tobago), and African destinations (particularly the Republic of South Africa, Ivory Coast, Senegal, Algeria, and Ghana) remain strong, while sales to Asian countries continue to fall. The region showing the most growth in imports of U.S. rice is the trade bloc of Eastern Europe (EE) and the Former Soviet Union (FSU), with expected 1992/93 imports more than double from 1991/92. However, almost none of the rice going to the FSU countries is commercial sales. Of EE/FSU sales, two-thirds are expected to be food aid to the FSU, while the remaining third are EEP sales to EE.

## International Rice Situation

### World Production Forecast Down in 1993/94

World rice production and stocks for 1993/94 are forecast to drop substantially from the 1992/93 totals. World rice production in 1993/94 is forecast at 348.6 million tons (milled), slightly below 1992/93's 350.4 million tons. Global consumption for 1993/94 is forecast up at 356.1 million tons for a sixth consecutive year of growth. The net effect of the lower production and higher consumption is a projected sharp decline in world ending stocks to 44.9 million tons, down 14 percent from 1992/93's 52.4 million tons.

At first glance this would suggest a tightening world supply and demand situation; however, this forecast is principally

the product of important changes underway in China. (See special article, "China's Marketing Reform Dynamic.") Most of these changes are internal to China, with only limited impact on world commodity markets. The outlook for the non-China world supply and demand situation for rice remains very stable, with abundant supplies continuing to pressure prices throughout the year.

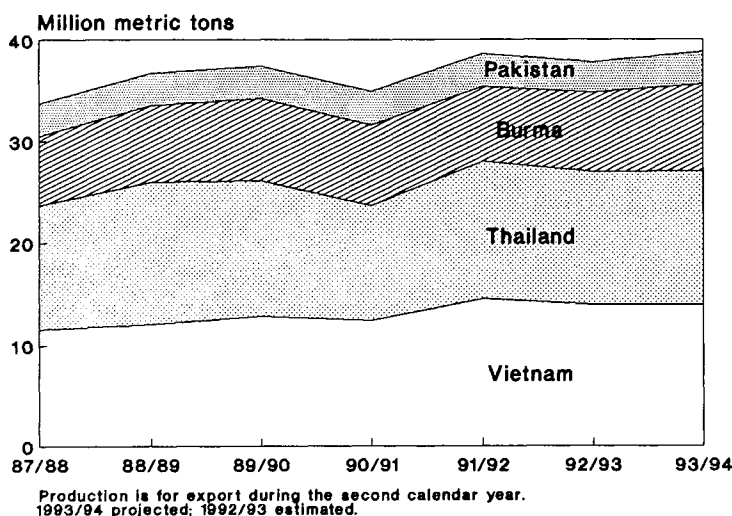
From a global perspective, a second consecutive year of abundant supplies in the major consuming countries is projected to prevent world trade from showing any significant growth. World trade is forecast at 13.6 million tons in 1994, up only marginally from 1993's 13.5 million tons. In light of abundant exportable supplies combined with a stagnant import market, the outlook is for continued fierce competition in international markets to keep pressure on world prices into 1994.

Therefore, U.S. exports are likely to face continued strong competition in the world market. However, with continued large U.S. supplies and lower prices, U.S. exports and market share are projected to hold steady with marginal increases projected in both from 2.4 million tons (17.8 percent share) in 1993 to 2.5 million tons in 1994 (18.4 percent). U.S. government export programs for rice are not expected to show any significant growth in 1994, thus making commercial sales the major engine of growth in U.S. rice exports. As a result, competitiveness is expected to be the major factor in determining whether U.S. market share increases in 1994.

### **Abundant Export Supplies To Continue into 1994**

The monsoons have started on time in South and Southeast Asian countries. As of July 1993 the major rice growing regions appear to be receiving adequate precipitation. Assuming normal weather throughout the remainder of the growing season, nearly all of the major rice growing countries of Asia are expected to produce good crops.

**Figure 3  
Rice Production by Major Exporters**



The major foreign exporting countries of Thailand, Vietnam, Burma, and Pakistan are projected to produce a combined record of 38.8 million tons of milled rice, up nearly 1.0 million tons from 1992/93. Any production increases for these countries translates directly into higher exports since their domestic markets are unable to absorb the increase, while their governments are generally unwilling to finance the storing of large rice stocks.

Production in Thailand and Vietnam for 1993/94 is projected at essentially the same level as in 1992/93. Thailand's rice exports are projected to increase by 200,000 tons in 1994 on the strength of good crop prospects, strong government support for rice exports, and continued strong demand from the Middle East, especially Iraq and Saudi Arabia.

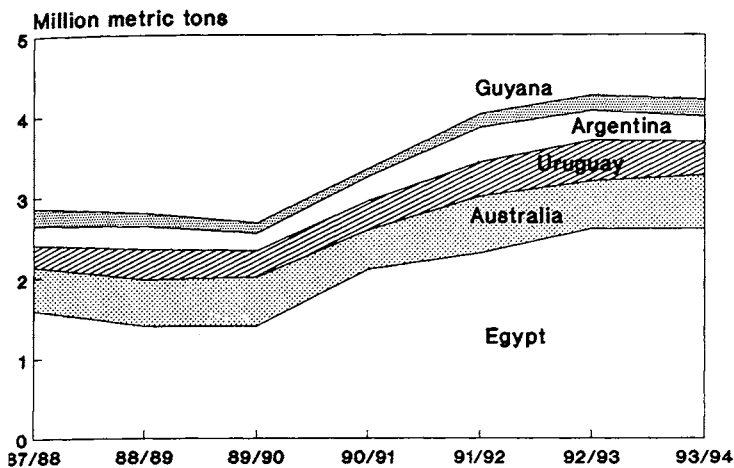
Vietnam's exports are also projected marginally higher, up 100,000 tons to 2.0 million tons in 1994. Vietnam's 1993 rice exports are forecast at 1.9 million tons, down slightly from 1992; however, aggressive marketing could see 1993 exports go higher. Through the first 6 months of 1993, Vietnam's rice exports are running 30 percent ahead of 1992's record 1.95-million-ton pace. Furthermore, Vietnam appears to be continually improving the quality of its rice exports. In 1992, the Government of Vietnam announced that nearly 38 percent of its 1.95 million tons of rice exports consisted of high-quality rice (5 to 15 percent broken). Through the first 6 months of 1993, 70 percent of Vietnam's exports have been high-quality rice. Should this trend continue, Vietnam could heighten the degree of competition in the international market for high-quality rice where the United States and Thailand have traditionally been the principal competitors.

Burma is forecast to produce a record 8.5 million tons in 1993/94, up 9 percent from a year earlier. The rapid increase in Burma's rice production is attributable to a government program of improved irrigation and input use designed to increase the output of Burma's smaller second crop of rice. Like Thailand, Burma's second crop is nearly all irrigated and is grown principally as a cash crop for export. The additional production is expected to push Burma's 1994 rice exports to 500,000 tons, from 300,000 tons in 1993.

Pakistan is expected to harvest 3.2 million tons of rice following last year's flood-reduced crop of 3.0 million tons. As a result, Pakistan's rice exports are projected to increase by 33 percent to 1.2 million tons in 1994.

A strong second tier of rice exporting countries has emerged during the past 5 years. They include Egypt, Australia, Uruguay, Argentina, and Guyana. Together, production in these five countries has grown from an average of 2.3 million tons of milled rice between 1980/81 and 1985/86, to 4.0 million tons in 1991/92. In 1992/93, production reached an estimated record 4.3 million tons, while a near record 4.2 million tons is projected for 1993/94. With the exception of Egypt, these countries do not have

Figure 4  
Rice Production for Minor Rice Exporters



Production is for export during the second calendar year. 1993/94 projected; 1992/93 estimated.

strong domestic markets, instead they depend on international trade to clear surplus production. This group's rice exports have grown from 947,000 tons in 1990 to an estimated 1.4 million tons in 1993. Over 1.4 million tons of exports are projected for calendar 1994.

The markets for this second tier of exporters are more regional and specialized in scope than the markets of the five first tier countries (Thailand, Vietnam, United States, Burma, and Pakistan). Egypt and Australia produce and export principally japonica rice. Uruguay and Argentina export rice predominantly to South American markets, particularly Brazil; while Guyana generally exports lower-quality rice to Caribbean and European destinations. Exports from Egypt and Australia are projected unchanged in 1994 at 200,000 and 500,000 tons, respectively. Argentina's rice exports are projected down by 3 percent to 170,000 tons. On the other hand, Uruguay and Guyana are projected to show strong growth in exports. Uruguay's rice exports are projected to rise over 14 percent to a record 400,000 tons in 1994, while Guyana's exports are projected to rise by over 10 percent to 160,000 tons.

### Stagnant Import Demand Projected Into 1994

Marginally higher import demand is projected for calendar 1994 based on continued growth in the EC, Canadian, Mexican, Peruvian, and Cuban markets. However, many of the traditional importing countries are projected to produce above-average rice harvests in 1993/94, thus reducing their need to import. This includes the Philippines, India, Indonesia, and Iran. In addition, the demise of the Soviet Union as a viable commercial market has been a weakening factor in nearly all of the major grain markets.

The EC's rice imports are projected to rise by nearly 9 percent to 625,000 tons in 1994, due principally to a drought-related production shortfall in Spain. Spain's 1993/94 rice

### World Trade Statistics Adjusted To Exclude EC Intra-Trade in Rice

The USDA supply and demand data base has been adjusted to exclude EC intra-trade from 1980 to the present. The EC is now treated as a single country with trade reflecting exports to and imports from third countries only. World rice trade data prior to 1980 still includes the EC intra-trade.

EC intra-trade averaged between 750,000 to 800,000 tons from 1990 to 1993. This adjustment to world trade results in a lower overall level of trade in rice; however, it is consistent with the method used by USDA for calculating and recording trade in other grains (wheat, corn, barley, oats, and sorghum).

Table 1 presents the breakout of EC rice trade by intra-, extra-, and total for both imports and exports. The breakout has been calculated from EUROSTAT data by the Foreign Agricultural Service of USDA.

Table 1--EC trade in rice since 1980

Year	Exports			Imports		
	3rd Country	Intra-trade	Total	3rd Country	Intra-trade	Total
1,000 Metric tons						
1980	321	519	840	501	510	1,011
1981	195	572	767	536	662	1,198
1982	239	592	831	616	738	1,354
1983	337	568	905	624	697	1,321
1984	230	606	836	591	861	1,452
1985	265	652	917	603	779	1,382
1986	369	662	1,031	591	718	1,309
1987	362	704	1,066	535	701	1,236
1988	228	607	835	590	658	1,248
1989	239	672	911	561	749	1,310
1990	271	706	977	500	769	1,269
1991	391	759	1,150	481	799	1,280
1992	376	796	1,172	463	731	1,194
1993	300	790	1,090	575	787	1,362
1994	200	763	963	626	769	1,395

Source: USDA data, calculated from EUROSTAT.

production is projected at 230,000 tons, down by 41 percent from the 1992/93 crop. (See box 1.)

The consistent growth in the Canadian market is attributable to steady population growth including an expanding immigrant population. Canada's imports are projected up over 5 percent to 190,000 tons in 1994.

Mexico's rice imports are projected at a record 400,000 tons. Mexico's fast growing import market is principally the result of a government policy decision. Since joining GATT in 1986, Mexico has been liberalizing several of its grain sectors. This has meant a reduction in trade restrictions and the elimination of input subsidies, thus forcing producers to compete at international prices. This has oc-



curred for rice, sorghum, and oilseeds, but not for corn and dry beans. As a consequence, many producers have shifted away from the liberalized grain sectors and into the production of corn and dry beans where the government maintains higher support prices. This has produced large imports of rice. In 1992, Mexico's rice imports jumped by 223 percent to 385,000 tons before slowing slightly in 1993 to 350,000 tons.

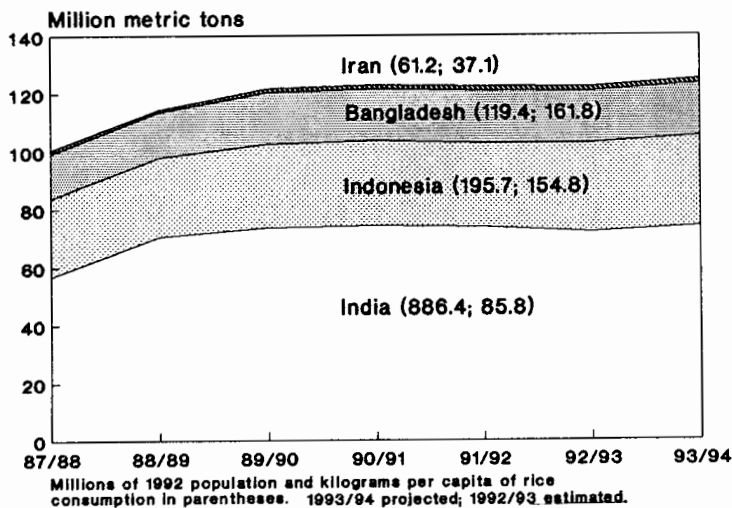
Peru is projected to increase its rice imports by 36 percent to 300,000 tons in calendar 1994 due to stagnant production, reduced stocks, and the opportunity to take advantage of low world prices.

Projected record rice production of 6.5 million tons in the Philippines combined with intense political opposition to rice imports are expected to be sufficient to prevent any rice imports in 1994. The Philippines' record rice production is projected on the strength of a return to normal acreage following the Mt. Pinatubo eruption, an outlook for normal weather, and a government program to increase input use. In 1993 the Philippines are expected to import 150,000 tons, mostly from Thailand on a barter swap for fertilizer. Although the swap has been finalized, it remains a contentious issue still under debate in the Philippine Senate.

Indonesia is projected to produce a record rice harvest of 31.3 million tons in 1993/94, its second consecutive record. Expanded acreage is again behind the output. As a result of the projected good harvest, Indonesia is expected to keep imports unchanged at only 50,000 tons in calendar 1994. Despite abundant stocks of rice ready for export, high domestic prices relative to world prices are expected to prevent Indonesia from competing successfully in the world rice market as an exporter. As a result, no exports are projected for calendar 1994, however, in 1993 Indonesia will export an estimated 450,000 tons of rice.

India is projected to produce a near-record 74.0 million tons of rice in 1993/94, behind only the 1990/91 crop of

**Figure 5**  
**Rice Production for Potential Importers**



74.3 million tons. Normal monsoon rains, permitting a return to normal acreage, are expected to provide the difference from last year's drought-reduced crop of 72.0 million tons. India's rice import needs are best determined as a function of its overall grain situation and government stock holdings. A projected third consecutive year of large wheat production, coupled with current high government procurements of both rice and wheat are expected to reduce Indian grain import needs. In addition, the Government of India (GOI) is under intense pressure to not import rice. If it is able to maintain stocks at a reasonable level (estimated to be 21.4 million tons of foodgrains) then imports can be avoided. As of July 5, 1993, the GOI had over 24 million tons of food grains (11.6 million tons of 1992/93 crop rice and 13.0 million tons of 1993/94 crop wheat) compared with only 15.4 million tons last year (9.0 of rice and 6.4 of wheat).

The current surplus rice stock situation in Bangladesh is expected to continue into calendar 1994 on the strength of another projected large crop in 1993/94 of over 18.0 million tons, thus preventing the need for imports. Abundant harvests of the past 2 years have produced excess government stocks, much of which is of poor quality, and have pressured Bangladesh's domestic prices lower.

With the exception of Iran, traditional Middle Eastern rice markets are expected to show continued strong import demand. This includes Saudi Arabia, Iraq, Turkey, United Arab Emirates, Kuwait, Syria, and Jordan. Imports for each of these countries is either unchanged or up slightly. The only exception to this growth is Iran, which is projected to harvest its fifth consecutive bumper rice crop, 1.5 million tons, on the strength of expanding irrigated acreage. Thus, despite projected record consumption of over 2.3 million tons of rice and a slight draw down in ending stocks, Iran is expected to lower its import demand from 950,000 tons in calendar 1993 to 750,000 tons in 1994.

The demise of the Former Soviet Union (FSU) as a viable commercial market has been a weakening factor in nearly all of the major grain markets. Calendar 1994 FSU rice imports are projected unchanged from the 750,000-ton import estimate of 1993. No commercial purchases from the United States are expected in 1993, while rice purchases from Thailand and Vietnam have been made under either very generous credit conditions for the buyer or barter terms.

Rapid population growth projections for the Central Asian Republics (CAR's) combined with important reserves of mineral resources give them attractive growth potential as markets for rice. However, the newly established republics of the FSU have yet to establish themselves as viable commercial markets for rice. The transition to independent nation status has been slow and often marred by domestic fighting. Despite high per capita rice consumption, estimated as high as 35 to 40 kilograms per capita in some Republics, and the presence of considerable mineral resources,



it may still be several years before the CAR's become active participants in the international market.

Eastern Europe is projected to import 262,000 tons in 1994, down 18 percent from 1993. Projected 1993/94 production is unchanged from 1992/93 at 85,000 tons; however, consumption is projected to decline by 16 percent to 316,000 tons. Production of wheat and other grains is projected to return to normal levels in 1993/94 from 1992/93's drought-reduced crop, thus contributing to lower expected rice import demand.

Several African countries are projected to show important growth in their rice imports in calendar 1994, most importantly, Nigeria, Senegal, and the Republic of South Africa. However, much of their gains are expected to be offset by significant projected reductions in rice imports to Ghana, Guinea, and Liberia.

Nigeria partially lifted the rice import ban that has been in effect since October 1985. The Ministry of Agriculture recently issued at least seven import licenses for a total of 300,000 tons of rice. Nigeria is projected to increase its 1994 rice imports by 75 percent to 350,000 tons. Nigeria is traditionally an importer of parboiled rice. Prior to the import ban, Nigeria was a reliable customer of United States parboiled rice. However, since the import ban went into effect, large amounts of Thai parboiled rice have been smuggled into Nigeria via neighboring countries. As a result, the United States can expect strong competition from Thailand for the Nigerian market.

The Government of Sri Lanka, a sizeable rice importer in past years, has recently (April 1993) declared its intentions to initially reduce, then eventually to ban rice imports. A total ban on rice imports is to go into effect by 1994. The ban is intended to create the incentives necessary for Sri Lankan producers to attain self-sufficiency. Sri Lanka's 1994 rice imports are projected at 300,000, unchanged from 1993. This could fall if the government of Sri Lanka is able to effectively implement its proposed ban on imports.

### **China: Importer or Exporter?**

From a statistical point of view, China is the singular most important country in the world with respect to rice production, consumption, and stocks. From 1970 to 1992, China's annual share of global rice supply and demand has averaged 37.5 percent of milled production, 36.9 percent of consumption, and 51.0 percent of stocks. As a result, a major change in China's rice outlook produces significant changes in the global rice outlook.

China's rice outlook for marketing year 1993/94 is for production of 124.0 million tons (milled), down 5 percent from 1992/93's 130.4 million tons. This drop of 6.4 million tons in China's output more than offsets the rest of the world's rice production increase of 4.6 million tons, thus producing a net decline in world production of 1.8 million tons.

Table 2--World vs. China rice supply and demand 1/

	Production	Consumption	Ending Stocks
<b>World:</b>			
1992/93	350.4	352.9	52.4
1993/94	348.6	356.1	44.9
Change	-1.8	3.2	-7.5
<b>P.R.China:</b>			
1992/93	130.4	129.0	28.1
1993/94	124.0	128.0	23.6
Change	-6.4	-1.0	-4.5
<b>World less P.R.China:</b>			
1992/93	220.0	223.9	24.3
1993/94	224.6	228.1	21.3
Change	4.6	4.2	-3.0

1/ Milled basis.

Source: USDA data.

China's rice consumption is forecast lower by 1 million tons in 1993/94. The fall in China's projected 1993/94 rice consumption is attributable to two phenomenon. First, many areas of China, particularly urban settings, are witnessing rapid declines in per capita consumption of rice due to rising incomes and greater availability of other foods in the market place. Second, a lower amount of rice is projected to be fed to livestock from new crop production as farmers shift away from lower quality, higher-yielding varieties and towards higher-quality, but lower-yielding varieties.

The consequent drop in China's forecast 1993/94 rice ending stocks of 4.5 million tons exaggerates an otherwise modest decline of 3.0 million tons in non-China global ending stocks.

The trade implications of any changes in China's agricultural policy are not always obvious since China's huge domestic production capability and internal market, coupled with a large stock build-up during the past decade, help to shield it from the international market. Furthermore, China's participation in international markets is not always based strictly on its own supply and demand situation.

The forecast for 1994 is for China to export only 500,000 tons of rice while importing 50,000 tons. These totals are down substantially from their 1993 projections of 900,000 and 100,000 tons, respectively, and reflect the projected decline in availability of low-quality, new-crop rice for export accompanied by an increase in the supply of import-substituting high-quality rice.

### **How Important Are Falling World Rice Stocks?**

World ending stocks are projected to fall by 7.5 million tons during 1993/94. Although China accounts for 4.5 million tons or over 60 percent of this, the remaining decline of 3.0 million tons is not insignificant and would appear to support higher market prices. However, an examination of the composition of this projected non-China decline in world stocks reveals that its potential impact could be minimal.

First, India is projected to draw down its rice stocks by nearly 2.0 million tons to only 7.0 million tons in 1993/94. As mentioned earlier, India's rice situation is best examined within the context of its total grain situation. Government food grain procurements are running well ahead of projected need. Furthermore, the GOI is under intense pressure to avoid rice imports.

Burma and Pakistan are projected to draw down their rice stocks in 1993/94 by 160,000 and 250,000 tons, respectively. However, this disappearance reflects their desire to export rice rather than hold stocks.

South Korea's rice stocks are projected lower by 300,000 tons in 1993/94. This is due to a government policy designed to reduce an existing surplus stock situation by limiting domestic production through acreage controls.

Indonesia's projected fall in rice stock holdings by 320,000 tons in 1993/94 represents a government policy to reduce current large government-owned stocks by exporting an estimated 450,000 tons in calendar 1993. This would still leave the government with approximately 150,000 tons of rice for export. Current world prices appear to be below the price the government paid for this rice, thus keeping it off of the market.

Only Brazil appears to be having serious problems meeting its rice consumption needs. Brazil's rice stocks are projected to fall by 280,000 tons in 1993/94 after falling by 270,000 tons in 1992/93. Thus, since 1991/92's ending stocks of 1.5 million tons, Brazil's ending stocks have

fallen by 550,000 tons or 38 percent, to the lowest level since 1984. Brazil is currently projected to import 350,000 tons in calendar 1994, matching its projected 1993 imports. However, any further production difficulties or a government desire to take advantage of low global rice prices could result in rice imports above current projections.

### ***U.S. Market Share To Rise***

U.S. exports are projected to increase marginally in calendar 1993 to 2.5 million tons, up 100,000 tons from 1992. U.S. supplies are expected to remain large at 6.7 million tons (milled), down only about 70,000 tons from 1992. Therefore, if U.S. prices remain competitive, particularly during the first half of the marketing year, U.S. market share is likely to rise from a forecast 17.8 percent in calendar 1993 to a projected 18.4 percent in 1994.

Government program allocations for fiscal 1994, including P.L. 480, GSM credit guarantees, and EEP have not yet been announced. With large projected supplies and low prices entering the new fiscal year, it is possible that P.L. 480 shipments could rise. However, like fiscal 1993, it is likely that exports under GSM credit guarantees will continue to play a minor role. Similarly, there is no reason to expect significant changes in EEP allocations and sales for the next fiscal year.

Commercial sales are expected to drive U.S. rice exports in calendar 1994. As a result, competitiveness is expected to be the major factor in determining whether U.S. market share increases in calendar 1994.

## China's Marketing Reform Dynamic

by Frederick W. Crook and Randall D. Schnepf<sup>1/</sup>

**Abstract:** Since the early 1980's China has been undergoing a marketing reform dynamic that has produced dramatic changes in agricultural production, domestic use, and international trade for the world's largest nation. In 1992 the market reform process was accelerated, resulting in significant changes in the out-year 1993/94 forecast for many of China's major commodities, particularly rice. Significantly lower rice acreage and production are projected for 1993/94 as farmers shift away from low-quality, high-yielding varieties to either higher-quality, but lower-yielding varieties or out of rice entirely. However, most of the forecast changes are internal to China, with only limited impact on the world rice market. This paper endeavors to describe the nature of China's recent agricultural policy changes and to explain their implications for China's rice production, use, and trade outlook for 1993/94 and beyond.

**Keywords:** China market reform, China rice production.

### Introduction

From a statistical point of view, China is the singular most important country in the world with respect to rice production, consumption, and stocks. From 1970 to 1992, China's annual share of global rice supply and demand has averaged 38 percent of milled production, 37 percent of consumption, and 51 percent of stocks. As a result, a major change in China's rice supply and demand situation produces significant changes in the global rice balance sheet.

During the past year China has been undertaking dramatic measures aimed at speeding up reform of its agricultural sector. Most provincial governments are abandoning the old State quota system of grain procurement, as well as the grain ration system of distribution. Reforms have expanded household decisionmaking and made profit maximization essential for survival for both households and the State-owned grain bureaus. Open markets for agricultural commodities are sending new signals to producers and consumers.

These changes are expected to produce dramatic changes in China's agricultural resource allocation. With rice this is expected to mean lower acreage. Rice acreage is projected to fall by nearly 0.8 million hectares in marketing year 1993/94 to 31.3 million hectares. Households are projected to shift away from low-quality, high-yielding rice varieties, particularly southern early double-crop rice, and into higher-quality and specialty rices. In addition, much acreage will be going out of rice entirely and into more profitable cash crops, fish ponds, or non-agricultural investments.

As a consequence of lower acreage, China's outlook for rice production in 1993/94 is for 124 million tons (milled), a decline of nearly 5 percent from 130.4 million tons in

1992/93. Similarly, consumption is forecast down by 1 million tons to 128 million tons as consumers shift away from low-quality rice and farmers feed less new-crop rice to livestock.

With respect to China's trade outlook, new policies require that export companies be profitable. Low world prices relative to domestic prices are likely to discourage some exports. As a result, China's exports are projected to decline to 500,000 tons in calendar 1994, down 44 percent from the 900,000 tons forecast for 1993. Imports in 1994 are projected lower at 50,000 tons, half of 1993's total, as rising domestic production of high-quality rice is projected to replace some imports.

### China's Changing Agricultural Environment

Since 1980, the power of the Communist Party of China and associated institutions has been eroded in rural areas. Earlier, these party institutions controlled almost every aspect of the lives of the rural population. For the past several decades, China's dominant agricultural policy objective was to maximize production. Farmers were told what crops would be planted, how income would be distributed, and what products would be sold to the State at what prices.

Since 1978, China has witnessed the breakup of the very restrictive commune system, the adoption of the household land contract system, the partial establishment of various kinds of markets, and the transfer of much of the agricultural decisionmaking to the farm household.

This process of market reform has accelerated this past year as 28 out of 31 provinces (the exceptions being Tibet, Hainan, and Ningxia) have begun phasing out fixed producer

<sup>1/</sup> Agricultural economists, Economic Research Service, USDA.

Table A-1--Rice supply and demand situation for China, 1960-93 1/

Year	Area 1,000 hectares	Yield Mt/ha	Production	Imports	Exports	Consumption	Stocks	Rough Production
			----- 1,000 metric tons -----					
1960	31,500	1.33	41,811	0	428	46,383	3,000	59,730
1961	26,276	1.43	37,548	0	458	38,590	1,500	53,640
1962	26,935	1.64	44,090	0	684	39,406	5,500	62,986
1963	27,715	1.86	51,636	0	762	48,874	7,500	73,766
1964	29,607	1.96	58,100	0	985	59,115	5,500	83,000
1965	29,825	2.06	61,405	0	1,487	59,418	6,000	87,721
1966	30,529	2.19	66,773	0	1,577	63,196	8,000	95,390
1967	30,436	2.15	65,580	0	1,299	64,781	7,500	93,686
1968	29,894	2.21	66,170	0	1,179	64,491	8,000	94,529
1969	30,432	2.19	66,546	5	1,280	65,771	7,500	95,066
1970	32,358	2.38	76,993	8	1,292	72,209	11,000	109,990
1971	34,918	2.31	80,643	19	1,426	77,236	13,000	115,204
1972	35,143	2.26	79,348	0	2,631	76,717	13,000	113,354
1973	35,090	2.43	85,215	102	2,060	80,257	16,000	121,736
1974	35,512	2.44	86,733	30	1,630	83,633	17,500	123,904
1975	35,729	2.46	87,892	114	876	85,130	19,500	125,560
1976	36,217	2.43	88,063	0	1,033	86,530	20,000	125,804
1977	35,526	2.53	89,996	0	1,435	87,561	21,000	128,566
1978	34,421	2.78	95,850	71	1,053	89,868	26,000	136,929
1979	33,344	3.02	100,625	18	1,116	96,527	29,000	143,750
1980	33,878	2.89	97,934	110	580	101,464	25,000	139,906
1981	33,293	3.03	100,768	250	470	103,548	22,000	143,954
1982	33,056	3.42	113,117	75	580	108,612	26,000	161,596
1983	33,136	3.57	118,206	100	1,160	113,646	29,500	168,866
1984	33,178	3.76	124,779	100	1,010	120,869	32,500	178,256
1985	32,070	3.68	117,999	322	950	122,371	27,500	168,570
1986	32,266	3.74	120,557	554	1,020	123,091	24,500	172,224
1987	32,139	3.79	121,716	310	697	123,329	22,500	173,880
1988	31,914	3.71	118,377	1,200	320	121,596	20,161	169,110
1989	32,700	3.86	126,091	142	300	123,059	23,035	180,130
1990	33,064	4.01	132,532	142	689	126,800	28,220	189,331
1991	32,590	3.95	128,667	93	933	128,537	27,510	183,810
1992	32,090	4.06	130,354	100	900	129,000	28,064	186,220
1993	31,330	3.96	124,000	50	500	128,000	23,614	177,173

1/ All numbers are on a milled basis except for the column labeled "rough". The year indicates the first year of the marketing year, e.g., 1993 represents the marketing year of 1993/94.

Source: Production, Supply, and Demand Database, Foreign Agricultural Service, USDA.

quotas, State procurement at fixed prices, and the grain ration system for consumers.

In December 1992, the State Planning Commission (SPC) announced that it intends to reduce 1993 planned production and circulation targets for most agricultural products. The plan is to remove all restrictions on grain prices and management in the next 2 or 3 years.

With the rapid abandonment of State grain procurements, farm families are being encouraged to pursue profit-maximizing behavior, instead of output-maximizing behavior. In light of the dramatic market-reform process, the pre-eminent question in early 1993 is: "How will farmers respond to the price signals?"

Additional factors have been operating as catalysts alongside the reform process. First, the rural government-owned grain procurement agencies (Grain Bureaus) have accumulated large, burdensome quantities of grain stocks, much of it poor quality. This has dampened any urgency to continue acquiring grain from farmers. The large stocks have depressed rural prices along with farmers' incentive to continue producing crops that even the Grain Bureaus are no longer willing to buy. Second, since the late 1980's, Grain Bureaus have been faced with a credit crunch that has forced them to issue IOU's rather than cash for agricultural

products purchased under State marketing quotas. The farm-level incentive is to switch to crops that fetch cash in open markets rather than paper IOU's from Grain Bureaus.

On the demand side, both urban and rural residents are rapidly becoming more discriminating consumers, demanding improved quality and greater choice. Higher-quality farm products now command substantial price premiums in local and urban markets. For example, in September 1992, rice prices in Shenyang city (a provincial capital with a population of 5.6 million) varied from a low of 1.14 yuan per kilo-gram for lower-quality State rice to 7 yuan per kilo for imported high-quality Thai rice.<sup>2/</sup>

## Government Grain Procurements

Shortly after gaining power, the Communist Government of the Peoples' Republic of China moved to control agriculture in rural China. By the mid 1950's, nearly all agricultural products had been placed under State control. The Grain Bureau of the Ministry of Commerce implemented the grain purchase and supply system, by which collective farms and communes were required to sell to the government fixed quotas of grains and edible oils at State-controlled prices (set well below world market prices). These

2/ January 1993 exchange rate: 5.75 yuan per U.S. \$1.

quotas represented minimum amounts that farm production units were expected to sell to the State. The sum total of these quotas was still insufficient to meet the State-determined urban and industrial demand; therefore, the Grain Bureaus purchased above-quota grain at higher prices in order to increase the quantities sold off the communes. Grain not sold to the State was used to compensate collective and commune members for labor. Grains were forbidden to enter open markets.

In 1978, open markets were revived for grains, oilseeds, and other staple crops such as fruits and vegetables, but excluded cotton, tobacco, silk, and sugar. This was followed in the 1980's by several policy measures designed to facilitate market development in China's agricultural sector. Perhaps the most important policy initiative was the disbanding of the commune system and the establishment of the Household Production Responsibility System (HPRS). The HPRS permitted farm households to manage their own crops and livestock after meeting State and collective obligations. Peasants could then sell their surplus output at open markets.

Agricultural output grew rapidly through the early 1980's; however, by 1984 the rate of growth slowed for grains. In 1985, the Grain Bureau abandoned the fixed quota purchase system and substituted a system of grain purchase contracts where purchase contracts were negotiated with farm households. The Grain Bureau signed two kinds of contracts: at fixed prices and at negotiated prices. This forced the Grain Bureau to raise the negotiated portion of its procurement, as well as the price, to solicit greater procurements to meet State commitments to urban residents. As a result, negotiated prices became tied more closely to market conditions.

By the late 1980's, the prices paid for some negotiated grain procurements rose to the point that some were higher than world market prices. By 1990 the State had dramatically increased the proportion of its grain procurement attributable to negotiated purchases from 9 percent in 1979 to 51 percent in 1990.

This trend ended in 1990 when record grain output caused open market prices to fall below State negotiated prices. Lower free-market prices then caused negotiated prices to fall, reducing the peasants' desire to sell rice to the State.

Throughout the 1980's the portion of total grain marketings taken by the State declined annually, falling from 99 percent in 1979 to 68 percent in 1990.

In the fall of 1992 the State Planning Commission announced that mandatory 1993 State quota targets would be reduced by half. In several provinces the Grain Bureaus simply ended government fixed grain procurements and, instead, are beginning to purchase grain in open markets to fulfill targets. In those provinces where Grain Bureaus have excess stocks, this change has left some producers with no buyers due to weak demand for low-quality grains. These households face the choice of either switching from

low-quality to higher-quality rice varieties or other crops, or increasing their own farmer-held stocks.

## Grain Ration System

From 1955 to 1992, provincial governments followed a system of issuing grain rations to urban consumers. A ration holder was guaranteed the purchase of fixed quantities of State cereal rations at low fixed prices.

In association with the government's procurement of agricultural products at negotiated prices, similar negotiated-price retail sales were introduced in 1985 to help make up the price difference between procurement and subsidized resale prices. However, this offset was only partial as the government's budget deficit related to subsidized food sales grew from 1 billion yuan in 1978 to 39 billion yuan in 1990.

In 1985, the government removed all or part of the urban rationing system controls for fruits, vegetables, livestock products, and some other non-staple products, but not for grains and oilseeds. The prices for the non-ration commodities were allowed to follow market conditions. Rising consumer demand produced higher prices. Consequently, profit margins for non-ration commodities rose relative to grains and oilseed crops. As a result, the area sown to fruits, vegetables, and other cash crops has expanded at the expense of grain and oilseeds.

In 1992, several provinces abandoned the old grain ration system for a variety of different systems ranging from total reliance on the open market to guaranteeing fixed quantities but at market prices. Consumer demand has since generated higher prices for higher-quality grains and specialty varieties of rice. This is expected to further reduce the area planted to the low-quality, high-yielding varieties of rice for 1993/94.

## Open Markets and Price Controls

In 1978, 113 agricultural commodities were under State control. By fall 1992, only a few agricultural commodities remained under price controls, among which were rice, wheat, corn, and soybeans.

In an effort at national integration of the open market system, the Central Government is developing a three-tiered marketing structure consisting of local open markets, regional wholesale markets, and the State-level wholesale market. In 1990 the State Statistical Bureau reported 72,579 open markets in China. In addition, many larger rural villages have small periodic markets.

In the early 1990's, regional wholesale markets such as those handling rice at Wuhan (Hubei province) and Changsha (Hunan province) were established to expedite the flow of agricultural products from one county, prefecture, or province to another. These wholesale markets are designed

to avoid the earlier problems of regional protectionism, commodity price distortions, hoarding, and speculation.

At a still higher level, the Zengzhou grain market was jointly established by Henan province and the Ministry of Commerce in October 1990. It is recognized as a national grain spot wholesale market. Authorities are planning to establish a second grain wholesale market in Shanghai to serve as a true futures market.

The free markets are producing important product differentiation and price variation. Northern China's rice farmers grow predominantly japonica rice while rice farmers in southern provinces grow indica. Recently numerous specialty rices such as black rice, glutinous rice, and fragrant rices that were traditionally produced for home consumption under the old marketing structure have begun to reappear in greater quantities in local markets. These specialty rices are trading at important price premiums to the standard indica and japonica varieties. In addition, freshness of marketed rice is generating price differentiation with new crop and freshly milled rices capturing price premiums relative to old crop and other old stock rices.

For example, in September 1992, rice prices at the Shenyang retail rice market were (yuan per kilo): 1.14 for State rice ration (presumably old crop); 1.20 for Xin Cheng Zi district rice; 1.24 for Shenyang rice from stocks; 1.30 for Shenyang newly milled rice; and 7.00 for imported, high-quality Thai rice.

## Grain Stocks Situation

Four consecutive years (1989 to 1992) of at- or near-record rice production combined with a declining per capita rice consumption have left the government with large stocks, much of it poor-quality rice. As China's consumers have become more discriminating in their rice demands, the government has found it increasingly difficult to draw down its bulging stocks of low-quality rice.

At the end of the 1992/93 marketing year, China's stocks totaled an estimated 27.2 million tons representing over 21 percent of annual domestic consumption needs. More dramatically, China's stocks represent over 52 percent of global stocks. Much of the stocks are low quality and would probably sell at a discount to other rice in open markets, thus maintaining pressure on prices for low-quality rice.

The volume of China's grain stocks are a State secret, but a November 1992 report published in Beijing indicated total grain stocks in 1990 were about 6 times larger than the current USDA estimate. If this is true, China would be carrying much larger rice stocks than estimated earlier, as much as nearly 19 months' use at current rates of consumption (3). This would then suggest that the desire for Grain Bureaus to decrease their unwanted low-quality rice stocks may be more compelling than originally thought. And it would reinforce both government disinterest in further pur-

chases of low-quality rice, as well as the farmer's disinterest in producing low-quality rice.

The government is no longer subsidizing most stock-holding, so provincial and county Grain Bureaus, now under pressure to make a profit, are drawing down stocks. It is estimated that about 60 percent of China's total rice stocks are stored by farmers. The remainder of the rice is in government storage facilities. Local Grain Bureaus' failure to purchase further surpluses of low-quality rice will essentially transfer the cost of storage to the farmer.

## Rural Credit Crunch

A further disincentive for farmers to produce government-purchased goods has been the reappearance in 1992 and 1993 of IOU's as payment for government quota procurements. In 1988 and 1989 government procurement agencies were forced to issue IOU's due to a credit crunch imposed by the Central Government in an attempt at stemming high inflation.

The recent surge in the reported use of IOU's is attributable to the adoption of profit maximization strategies by both the Agricultural Bank of China and the Grain Bureau.

First, the State Council regularly issues instructions to the banking system to transfer funds from central banks to the Agricultural Bank so that funds will be available to the Grain Bureau to pay cash for rice procured from farmers. Rather than allow these funds to sit idle, earning no interest, the Agricultural Banks have been loaning out the cash to rural business enterprises at lucrative interest rates. When Grain Bureaus have called for the cash, the banks report that they are low on cash, thus forcing Grain Bureaus to issue IOU's.

Second, farmers generally turn over their poorer-quality rice to the Grain Bureaus while retaining the higher-quality varieties for sale on the private market or for home-consumption. The Grain Bureaus are left with large stocks of hard-to-sell, low-quality grains. Instead of tying up more of their cash in poor-quality grain stocks, the Bureaus are looking for alternate investments where they can earn higher returns.

## Outlook for Rice in China

Because so many fundamental elements of China's agricultural economy have changed or are in the process of changing, it is difficult to look to the past for guidance in the future. Markets are becoming increasingly important in allocating resources in China, yet little price data exists to help catalog how producers and consumers respond to price signals.

How will farmers allocate resources in the new economic environment? What crops will they plant? How will they respond to international competition? What crops will the various localities specialize in? How will the government



of China intervene in the economy to maintain basic stocks, to keep price levels steady, or to subsidize farm incomes?

### Acreeage

Rice harvested acreage is projected to decline in 1993/94 to 31.3 million hectares (the lowest level since 1969/70 and down from 32.1 million hectares in 1992/93) as farmers shift from rice to alternative cash crops such as vegetables, orchards, and fish ponds, or to non-agricultural uses such as rural factories and housing construction near urban centers. Weak demand for low-quality rice in open markets, along with large grain stocks have pressured prices to unprofitable levels. Farmers are projected to respond by switching to more profitable uses for land.

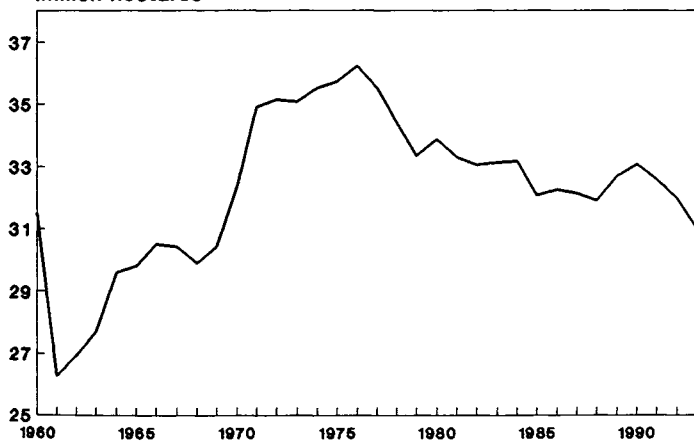
China's rice acreage peaked at 36.2 million hectares in 1976 and has been trending down ever since, despite government orchestrated increases in the late 1980's.

Most of China's rice production is indica long-grain occurring in the Yangtze River Valley and further south in more tropical areas. Acreage for this type of rice is declining.

Figure A-1

### China Rice Area

Million hectares



1992 forecast; 1993 projected.

Table A-3--China's main rice crop seasons

Rice crop	Season 1/		% of production 2/		
	Planted	Harvested	Indica	Japo-nica	Total
Early double crop	MAR-APR	JUN-AUG	27	0	27
Intermediate/single crop	APR-JUN	AUG-OCT	23	15	38
Late double crop	JUN-JUL	OCT-NOV	20	7	27
Northern crop	APR-JUN	AUG-OCT	0	8	8
<b>Total</b>			<b>70</b>	<b>30</b>	<b>100</b>

1/ "Major World Crop Areas and Climatic Profiles." WAOB, Agr. Handbook No.664. 2/ ERS estimate based on 1990 crop acreages. The actual japonica share of intermediate/single and late double crop acreages may exceed the estimates. Thus, these estimates should be viewed as minimum japonica acreage shares.

Only in the more temperate northern China, where japonica rice is grown, has there been a trend for increasing acreage; however this is more than offset by the decline in indica acreage in southern China.

The greatest decline in 1993/94 rice area is expected to continue to be in the south, especially in early crop acreage. Of all the different varieties of rice in stocks, perhaps the largest quantity is low-quality early rice. Past government programs pushed farmers to raise high-yielding, low-quality early rice. However, consumers preferred other kinds of

Table A-2--China's rice production by crop, 1979-93

	Southern rice 1/			Northern rice	Total rice 2/
	Early	Inter-mediate	Late		
1,000 hectares					
Area:					
1979	11,422	8,831	11,325	1,996	33,873
1980	11,110	9,412	11,016	1,974	33,879
1981	10,642	9,994	10,707	1,953	33,295
1982	10,513	10,015	10,603	1,925	33,071
1983	10,496	10,252	10,424	1,965	33,137
1984	10,278	10,450	10,250	2,200	33,178
1985	9,575	10,528	9,707	2,261	32,070
1986	9,543	10,533	9,797	2,393	32,266
1987	9,370	10,528	9,768	2,527	32,193
1988	9,220	10,678	9,558	2,532	31,987
1989	9,365	10,888	9,776	2,672	32,700
1990	9,418	10,984	9,839	2,824	33,064
1991	9,133	10,824	9,633	3,000	32,590
1992 3/	8,865	10,600	9,525	3,100	32,090
1993 3/	8,550	10,300	9,250	3,200	31,330

Yield:	Metric tons per hectare				
	Early	Inter-mediate	Late	Northern	Total
1979	4.55	4.70	3.68	4.28	4.24
1980	4.42	4.81	3.32	4.15	4.13
1981	4.65	4.91	3.37	4.30	4.32
1982	5.05	5.36	4.22	4.87	4.88
1983	4.84	5.74	4.62	5.06	5.10
1984	5.19	5.98	4.94	5.37	5.37
1985	5.10	5.95	4.65	5.25	5.26
1986	5.20	6.17	4.56	5.33	5.39
1987	5.09	6.24	4.87	5.42	5.41
1988	5.13	6.12	4.71	5.35	5.29
1989	5.23	6.50	5.08	5.64	5.51
1990	5.48	6.59	5.13	5.77	5.73
1991	5.12	6.52	5.43	5.73	5.64
1992 3/	5.37	6.49	5.35	5.77	5.80
1993 3/	5.20	6.38	5.16	5.62	5.65

Production:	1,000 metric tons				
	Early	Inter-mediate	Late	Northern	Total
1979	51,980	41,480	41,695	135,155	143,750
1980	49,140	45,288	36,579	131,007	139,935
1981	49,535	49,095	36,135	134,765	143,955
1982	53,060	53,685	44,790	151,535	161,235
1983	50,780	58,865	48,190	157,835	168,865
1984	53,305	62,478	50,683	166,466	178,255
1985	48,807	62,630	45,176	156,613	168,569
1986	49,619	65,034	44,672	159,325	172,224
1987	47,669	65,656	47,542	160,867	174,262
1988	47,282	65,396	45,010	157,688	169,107
1989	48,972	70,750	49,653	169,375	180,130
1990	51,649	72,422	50,438	174,509	189,331
1991	46,776	70,588	52,298	169,662	183,810
1992 3/	47,608	68,790	50,996	167,394	186,220
1993 3/	44,436	65,760	47,748	157,944	177,000

Sources: Materials drawn from "Agricultural Statistics of the People's Republic of China, 1949-90," ERS/USDA, Statistical Bulletin No. 844. As noted within the text, the source for crop breakdowns: various issues, Ministry of Agriculture Yearbooks for 1979-91. 1/ Early=Early Double Crop Rice; Intermediate=Intermediate and Single Crop Late Rice; and Late=Double Crop Late Rice. 2/ The source for China Totals, 1979-92, is the State Statistical Bureau, PRC, while the source for the crop breakdowns is the Ministry of Agriculture. The 1993 total is a USDA projection. The China total may not be the sum of the columns due to differences between the two sources. 3/ 1992 and 1993 breakdown by crop is an ERS estimate.

rice which meant that this rice variety was placed in government stocks. With the more recent open-market policy, consumers in south China began to bid up the price for high-quality, intermediate, and late crop rices and bid down the price for low-quality early rice. According to some reports, grain stations in south China now hold large quantities of early rice with few buyers.

### Yields

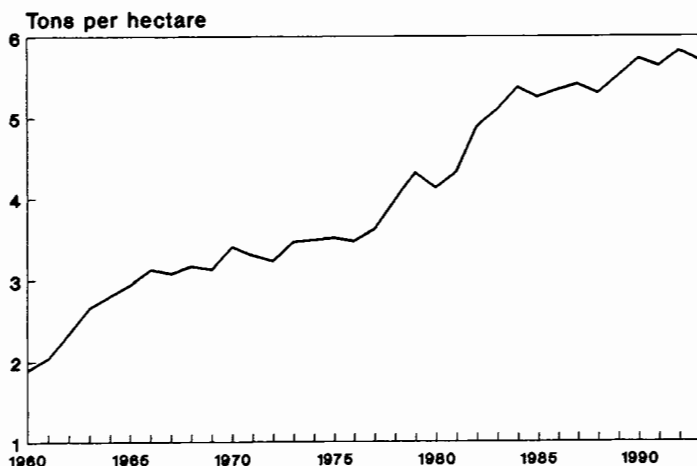
Many of the farms that stay with rice production are shifting out of high-yielding, low-quality varieties into lower-yielding, high-quality varieties in order to capture price advantages derived from a rapidly growing consumer demand for high-quality rice in China.

Prior to 1992, very limited quantities of the lower-yielding, higher-quality rice varieties were produced because of the government's policy of maximizing output. However, national and provincial agricultural officials have begun devoting more resources to expanding the output of high-quality rice seed. Some rice producing regions are beginning to buy seed for new varieties from Thailand to improve production quality.

Scientists at the Guangdong Rice Research Institute have stated that yields from the higher-quality varieties demanded by consumers are typically 20 to 30 percent below the widely used high-yielding hybrids. In Hunan province, China's leading rice producing province, high-quality rice has produced yields that are 750 kilos per hectare below conventional varieties and 1,500 kilos per hectare below hybrid, high-yielding varieties.

Additionally, the market reforms suggest a decline in farming intensity in 1993. In the past the loss of cultivated land, rising population, and higher incomes pressed China's farmers to use scarce land more intensively. As a result the multiple cropping index had been forecast to rise by 0.15 percent per year out to 2000. However, the low current prices for agricultural products, the large stocks, and the

Figure A-2  
China Rice Yields



1992 forecast; 1993 projected.

failure of government Grain Bureaus to purchase products with cash (instead of using IOU's) are expected to induce farmers to cultivate their land less intensively than before. In addition, the growth of rural industry should provide farmers with a higher rate of return on their labor compared with crop farming. Farmers also have the option of leaving the land for others to cultivate and seeking work in towns and cities.

### Production

As a result of declining acreage and flat or lower yields, China's rice production is forecast to drop 9 million tons (rough) in 1993/94, to 177 million tons from 186 million tons in 1992/93. A large portion of the decline will be low-quality indica rice, primarily the southern early crop, but also some intermediate- and late-season rice.

Consumer demand for japonica remains strong. This translates into a price premium over high-yielding indica varieties. However, gains in japonica production will be small relative to the decline in indica.

China's ability to produce japonica rice in its temperate, northern areas has great potential if the Japanese rice market is opened as part of GATT Uruguay Round negotiations. Processing facilities are being set up under a joint Hong Kong-Thailand-China arrangement to produce chemical-free japonica rice in Liaoning province in northeast China. The facility expects to produce 62,000 tons of pesticide-free exportable rice products per year.

Despite the distinct possibility of lower production as some farmers shift into high-quality rice varieties while others shift out of rice, there are near-term limits on this decline. Farmers close to urban centers can easily shift from low-yielding varieties of rice to higher-yielding varieties or even to cash crops and be assured of a market; however, the vast majority of China's rice is produced far from urban areas or adequate transportation. Poor infrastructure and a guaranteed market for the products, more than lack of capital or interest in cash crops, should protect China against a wholesale shift out of high-yielding indica rice production for the near-term.

### Inputs

China's system for delivering inputs to farmers also is changing from central planning to markets. The immediate effect is rising prices for fertilizer, pesticides, machinery, and fuel, which imply reduced profit margins for basic grains vis-à-vis cash crops and alternate land uses. This suggests reduced grain acreage as farmers look for higher returns.

Also, labor mobility is rapidly expanding. With the abandonment of the grain rationing system, the Party has lost one of its primary means to control population movements. Rural labor is now finding greater returns from rural industry and services. In addition, millions of rural laborers have left the poorer inland areas to find work in the richer

coastal provinces over the past 2 years because of poor returns on their agricultural labor. A current surplus of rural labor has diminished the negative impact. However, until profit margins begin to equalize between rural agriculture vis-à-vis industry, services, and urban opportunities this trend should continue with long-term implications for agriculture.

### Use

Despite continued slow growth in domestic consumption of rice for food, overall domestic usage for 1993/94 is projected to decline by 1 million tons to 128 million tons. This would be China's first decline in domestic usage since 1988/89.

Rice quality has become an important issue in China. Rising incomes and reduced consumer subsidies for rice have resulted in increased demand for high-quality rice. Urban consumers have decreased their rice consumption in favor of vegetables, fruits, meat, fish, and wheat products. For example, in Guangdong province, per capita rice consumption fell from 162 kilograms in 1987 to 84 kilos in 1992.

Most high-quality rice production is sold by farmers on the free market, while lower-quality rice is sold to the Grain Bureaus to fulfill production quotas. This low-quality rice is often exported, used for animal feed or in food processing (including a feed stock for beer). Farmers are finding it increasingly difficult to market much low-quality rice. As a result, in rural areas much low-quality rice has been fed to pigs. This phenomenon, largely unrecorded, appears particularly acute in southern early-rice-growing provinces where the portion of predominantly low-quality indica production regularly fed to pigs probably averages close to 30 percent, but may exceed 50 percent in years of excess supply.

It is projected that the shift away from high-yielding, low-quality early rice will result in a substantial decline in new-crop rice feeding to livestock. Instead, on-farm stocks of

low-quality rice may be used for feed. No official records of annual rice feeding are kept, thus, changes in on-farm stock-holdings and usage remain highly speculative. ERS remains open to the possibility that southern farmers may find corn production unprofitable, given their agro-climatic environment. This could preserve the importance of low-quality rice feeding on southern farms, particularly if plant breeders are able to enhance its protein content.

### Trade

China will continue to import some high-quality rice for urban consumption in 1994 although domestic production will begin to meet a larger portion of this demand. Imports in 1994 are projected lower at 50,000 tons, half of 1993's total, and could disappear altogether with future improvements in the domestic infrastructure. Most of China's imports come from Thailand, although unofficial across-the-border imports from Vietnam are expected to continue.

New policies require that export companies be profitable. As a result, low world prices relative to domestic prices are likely to discourage some exports. China's exports are projected to decline to 500,000 tons in calendar 1994, down 44 percent from the 900,000 tons forecast for 1993. In addition, the shift in production either towards high-quality, lower-yielding varieties or into cash crops and other uses should limit the amount of new-crop, low-quality rice available for exports in 1994.

However, abundant old-crop, low-quality rice stocks remain available for export should international market conditions improve. Current high stocks of rice coupled with the large 1992/93 crop should maintain abundant rice supplies out to 1995 and possibly beyond, depending on the extent of the stock holdings. The release of these excess stocks could increase calendar 1994 exports well above the current projection of 500,000 tons.

China's exports for calendar 1993 are projected at 900,000 tons, down only slightly from calendar 1992's estimated

Figure A-3  
China Rice Supply and Demand

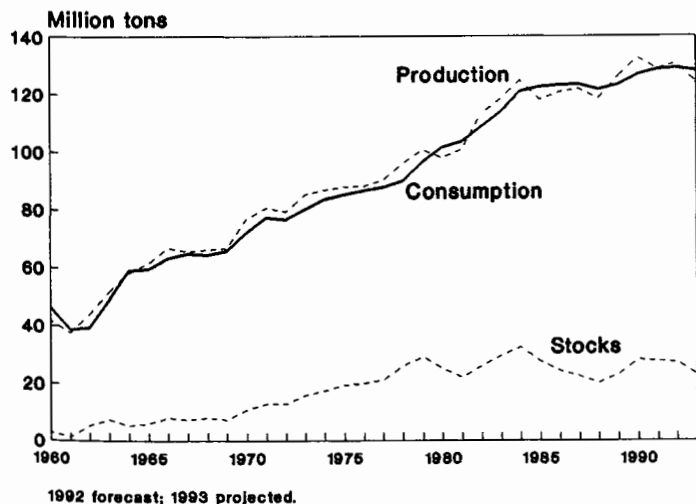
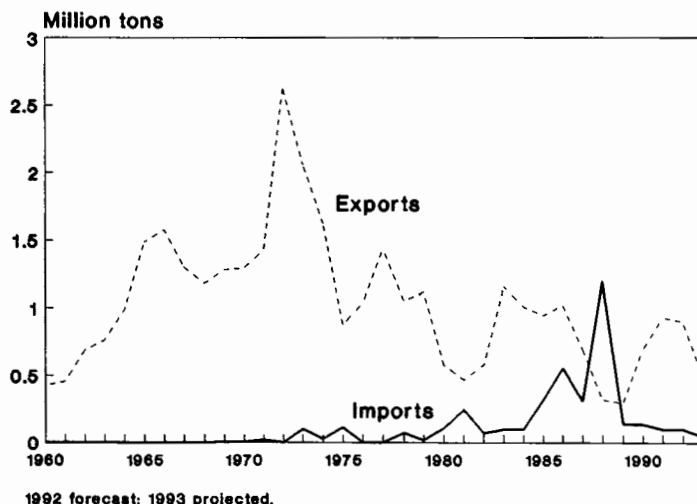


Figure A-4  
China Rice Trade



930,000 tons. External trade in grains is monopolized by China Cereal and Oils Import/Export Corporation (CEROIL), the government-run international grain trade corporation. Since high-quality rice commands a premium in the domestic market, only limited exports are permitted to Hong Kong. Instead, most of China's rice exports consist of low-quality rice sold to poor countries at low prices. Traditional markets for China's low-quality rice include Cuba, Africa, and Eastern Europe. China has maintained its low-quality markets by under-pricing its competitors despite increasing global competition. At the end of 1992, China's low-quality rice was trading at a 10 percent discount to Vietnam's low-quality rice and a 20 percent discount to Thailand's low-quality rice. Vietnam, Thailand, and Burma are China's principal competitors in the low-quality international rice market.

## Summary

Because reforms have expanded household decisionmaking and made profit maximization essential for survival, households are not likely to raise grains like rice because of falling prices and increased inputs costs. Instead, rural households will likely invest in more profitable economic crops such as fruits, vegetables, livestock production, and aquaculture. Also they will invest in lucrative rural industrial enterprises, service industries, and commercial ventures.

All of these forecasts are qualified by the fact that a number of important barriers still remain before the full effect of market reform will be felt. Barriers include an inefficient internal transportation infrastructure and communica-

tion network, an inadequate legal structure, poorly functioning capital markets, and an unreliable system of land-use transfers. In addition, the old system of local authorities keen on guarding their power remains in place. The continuing existence of these inhibitions makes it difficult for any analyst to predict the extent of change that will occur in 1993/94.

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## Marketing Loan: Its Process and Implications For U.S. Rice Prices

Janet Livezey<sup>1/</sup>

**Abstract:** Since its implementation in 1985, the rice marketing loan has helped make U.S. rice more competitive in world markets. The marketing loan allows producers to repay their loans at a rate based on the world price when the world price is below the U.S. loan rate. However, in many years a substantial premium (the amount that the price received by producers exceeds the world price) has developed and U.S. exports have faltered. This article explains the role of the marketing loan as a policy tool and identifies factors that interfere in the transmission of world prices to U.S. rice.

**Keywords:** Marketing loan, rice policy, rice price.

The introduction and implementation of the rice marketing loan under the 1985 Farm Bill revitalized the U.S. rice industry at a time when its future looked exceptionally bleak. Its continuation under the 1990 Farm Bill has helped to make U.S. rice more competitive in the world market.

In the early 1980's the economic environment shifted from one of booming world trade and record U.S. exports, fueled by low interest rates and a declining value of the U.S. dollar, to one of sluggish world trade and rapidly falling U.S. exports. The U.S. and global economies slipped into a recession as interest rates soared. Demand for U.S. exports slid precipitously as the value of the dollar rose and support prices remained high relative to other exporters' prices. Producers were caught between rising production costs, including particularly high interest charges, and falling prices. Millers were operating their plants at well below capacity and exporters were losing sales in traditional U.S. markets.

U.S. rice supplies soared to record highs as exports plunged. Slowing world demand for rice imports and surging exports of lower-priced rice from other countries, mainly Thailand, dramatically reduced world demand for U.S. rice.

U.S. rice prices were almost twice as high as Thailand's and U.S. prices could not adjust downward because of the rigid structure of the then-current U.S. loan and purchase program. Price and income supports under the 1981 Farm Bill had been pegged at record highs in response to the soaring inflation of the 1970's. When inflation cooled in the 1980's, U.S. prices continued to be supported at higher levels and quickly got out of line with world prices.

The 1985 Farm Bill and succeeding legislation increased government's role in agriculture from one of primarily price and income support and supply control to one that also strives to keep U.S. prices competitive on world mar-

kets. Price and income supports were lowered to better reflect world market conditions and to discourage surplus domestic production. The marketing loan was initiated to spur demand for U.S. rice. Although the U.S. loan rate was reduced from the 1985/86 level of \$8.00 per cwt, the rate cannot fall below \$6.50. This minimum rate may be high enough to price U.S. rice out of the world market.

The following discussion explains the rice marketing loan process, looks at the relationships between U.S. prices and world prices, and identifies factors that keep these two price series from moving in unison.

### Marketing Loan

The rice marketing loan is a policy tool used to make U.S. rice more competitive in world markets. To accomplish this, producers are allowed to repay their crop loans at a rate based on the world price when the world price is below the loan rate. This marketing loan outlay is absorbed by the government. Thus, exporters and other users can purchase U.S. rice at a rate closer to its world market value while farmers continue to receive the total loan value.

The rice marketing loan went into effect on April 15, 1986, and its impact was immediate and dramatic. At that time the U.S. loan rate was \$8.00 per cwt while the world price was around \$3.50. The U.S. price fell to \$3.60 per cwt and export sales increased sharply during the remainder of marketing year 1985/86 and continued strong through 1986/87. Rice exports for 1986/87 rebounded 43 percent from 1985/86's reduced level, sharply reversing the plummeting trend of the early 1980's. Since then marketing year exports have fluctuated significantly from year to year, but exports averaged 15 percent higher from 1986/87 through 1990/91 than they did from 1981/82 through 1985/86. Since 1987/88, tight U.S. supplies and larger world supplies have limited U.S. export growth.

While the marketing loan program helped to revive U.S. exports and, along with strong domestic demand, successfully

<sup>1/</sup> Agricultural economist, Economic Research Service, USDA.

eliminated burdensome stocks, the program does not always keep U.S. prices fully in line with world prices. In many years a substantial premium (the amount that the price received by producers exceeds the world price) has developed and U.S. exports have faltered.

## World Market Price

The operation of the marketing loan is set in motion by the weekly announcement of the world market price (WMP). The farm bill requires the USDA to determine the prevailing WMP as a basis for loan repayment rates.

For this purpose, a WMP committee meets once a week to calculate the WMP. The committee is composed of representatives from the Foreign Agricultural Service, Agricultural Stabilization and Conservation Service, and World Agricultural Outlook Board.

The WMP is calculated by using a predetermined formula and is based upon a review of the prices at which different classes of rice are being traded in world markets. These prices are weighted to account for quality differences and other relevant factors. Thus derived, the selected and weighted prices are adjusted for U.S. grade number 2, 4-percent broken kernels for long, medium, and short grain rice at free-on-board (FOB) vessel positions, U.S. ports.

The WMP is a milled price and must be adjusted to the rough basis on which rice price-support loans are made and repaid. Also, allowances are made for domestic milling, handling, and bagging costs and for domestically marketed by-products. The WMP is then called an adjusted WMP, loan rate basis.

After reviewing the work of the committee, the Secretary of Agriculture announces the WMP resulting from the committee calculation. That announced WMP is used as a basis for determining loan repayment rates from the time of the announcement (Tuesday at 3:00 P.M. Eastern Time) until the subsequent announcement.

## Producer Premium

Since 1985 the average WMP for all classes of rice has fluctuated between \$3.35 and \$8.75 per hundredweight (cwt) on a monthly basis while U.S. prices have ranged between \$3.50 and \$9.40 per cwt. U.S. prices normally average somewhat above the world price, reflecting a premium

paid to growers to entice them to repay loans and sell rice rather than forfeiting the grain to the government. The minimum difference between the U.S. producer price and the WMP on an annual basis has been around 25 to 50 cents per cwt.

From 1986/87 through 1992/93 an annual calculation of this difference or premium<sup>2/</sup> has varied between 25 cents and \$1.73 per cwt (Table B-1). Within a year the premium sometimes exceeded \$2.00 per cwt. In only 2 years out of the 7 was the premium at the low end of the range. In 4 years the premium went above \$1.00 per cwt.

The premium represents additional returns to rice producers, but does not reduce government outlays the way rising market prices above the loan rate would reduce the regular deficiency payment rate. The government must pay or forgive the difference between the WMP and the loan rate even though producers are capturing all or part of that gain in the market place, and may be receiving a net price in excess of the target price. Government outlays remain the same whether or not the rice is exported or sold into the generally higher-valued domestic market.

In years of short supply the domestic market generally outbids the export market for the available rice, exports are usually lower, and the premium moves higher. Federal budget constraints have led to a smaller percentage of the rice acreage base being covered by government income support payments. This has reduced incentives to produce rice compared to earlier years. In addition, legislation mandates that the acreage reduction program (ARP) be adjusted to achieve a stocks-to-use ratio in a range of 16.5 to 20 percent. These programs tend to keep U.S. supplies at relatively tight levels, and U.S. prices above the WMP.

Government stocks, for which there is no premium needed for redemption, were virtually depleted by 1987/88 and the increasing tightness of supply (brought about by constrained production and growing demand) was reflected in the rapidly declining stocks-to-use ratio. Between 1985/86 and 1990/91, the ratio plummeted from 62 to 15 percent. In 1991/92, the ratio edged up slightly to 17 percent.

Statistical analysis has shown that there is a strong inverse relationship between the stocks-to-use ratio and the level of the premium (I,3).

Table B-1--Producer premium

Crop year	-----Annual average-----		
	U.S. rough rice price	World market price (WMP)	Premium
-----Dollars per cwt-----			
1986	3.75	3.50	0.25
1987	7.27	6.15	1.12
1988	6.83	6.50	0.33
1989	7.35	6.00	1.35
1990	6.70	5.40	1.30
1991	7.58	5.85	1.73

<sup>2/</sup> The producer premium for each crop year (August-July) is calculated by subtracting an average WMP (August-July) for all classes of rice (long, medium, and short) from the annual average rough price received by producers for all classes of rice. The average rough price for each crop year is reported by NASS (Appendix Table 19). The average WMP is computed by calculating a simple average (August-July) of the weekly announced prices for each class (Appendix Table 18) and weighting each average price by that class' level of total U.S. production (Appendix Table 13) for the respective crop year.



Other factors, not statistically tested, that also seem to play a role in the level of the premium include (not necessarily by order of importance): Small or no government stocks,

- Producers' and millers' price expectations,
- Short-term world supply availabilities,
- Loan maturity dates,
- Volume and quality differences by State,
- Strong growth and increasing dominance of the domestic market where prices are usually much higher than the WMP, which is exclusively an export price,
- Growing market for value-added products,
- Greater demand for higher quality rice in the domestic market and the willingness to pay a higher price to get the best available,
- Adjustments in the WMP level,
- Entry of Vietnam as a major rice exporter of low quality rice, significantly reducing world prices,
- Adjustments in the WMP calculation not always reflective of the higher-priced markets where most U.S. rice is traded,
- Small level of cheaper rice imports unable to dampen U.S. domestic prices, and
- More U.S. rice being exported to nearby markets where the United States has a transportation advantage.

## Summary

Since 1985 U.S. rice prices have become more responsive to world markets. The WMP is now the floor for U.S. prices compared with the much higher loan rate prior to 1985. But U.S. prices can differ from world prices because of the factors just mentioned. During this period, U.S. rice prices have also become more variable, less predictable,

and have more downside potential. Knowledge of markets, especially international markets, has become more important. The marketing loan has kept the industry operating at a higher volume than it would have under earlier legislation, but industry participants are required to make riskier decisions in uncertain markets. Program costs to the government have remained large as marketing loan gains (costs) have partly offset reduced deficiency payment outlays.

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

Item	Unit	1988/89	1989/90	1990/91	1991/92	1992/93 2/	1993/94 3/
<b>Total rice:</b>							
Area planted	Mil. acre	2.93	2.73	2.90	2.88	3.17	3.02
Area harvested	"	2.90	2.69	2.82	2.78	3.13	2.97
Yield	Pounds/acre	5,514	5,749	5,529	5,674	5,722	5,657
Beginning stocks 4/	Mil. cwt	31.40	26.70	26.40	24.60	27.30	35.90
Production	"	159.90	154.50	156.10	157.50	179.10	168.00
Imports	"	3.80	4.40	4.80	5.30	6.00	6.50
Total supply	"	195.10	185.60	187.20	187.30	212.40	210.40
Domestic & residual 5/	"	82.40	82.00	91.70	93.70	97.50	100.50
Exports	"	85.90	77.20	70.90	66.40	79.00	80.00
Total use	"	168.30	159.20	162.70	160.10	176.50	180.50
Ending stocks	"	26.70	26.40	24.60	27.30	35.90	29.90
CCC	"	0.00	0.00	0.10	0.40	0.50	0.50
Free	"	26.70	26.40	24.50	26.80	35.40	29.40
Average market price 6/	\$/cwt	6.83	7.35	6.70	7.58	5.90-6.00	4.50-6.00
<b>Long:</b>							
Area harvested	Mil. acres	2.23	2.00	2.07	2.02	2.37	2.20
Yield	Pounds/acre	5,345	5,464	5,221	5,395	5,397	5,310
Beginning stocks	Mil. cwt	19.10	15.40	13.30	11.50	12.90	22.50
Production	"	119.40	109.20	107.80	109.10	128.10	116.60
Total supply 7/	"	142.10	128.90	125.40	125.40	146.30	144.70
Domestic & residual 5/	"	55.60	54.90	57.80	61.50	63.30	64.80
Exports	"	71.20	60.80	56.00	51.00	63.50	63.50
Total use	"	126.80	115.70	113.80	112.50	126.80	128.30
Ending stocks	"	15.40	13.30	11.50	12.90	19.50	16.40
Average market price 6/	\$/cwt	6.96	7.59	6.94	7.83	NA	NA
<b>Medium/short:</b>							
Area harvested	Mil. acres	0.67	0.69	0.76	0.75	0.76	0.77
Yield	Pounds/acre	6,077	6,579	6,370	6,426	6,738	6,640
Beginning stocks	Mil. cwt	10.80	9.00	11.60	11.70	12.90	14.90
Production	"	40.50	45.30	48.30	48.30	51.00	51.40
Total supply 7/	"	51.40	54.30	60.40	60.50	64.60	67.30
Domestic & residual 5/	"	27.80	26.30	33.80	32.20	34.20	35.70
Exports	"	14.70	16.40	14.90	15.40	15.50	16.50
Total use	"	42.50	42.70	48.80	47.60	49.70	52.20
Ending stocks	"	9.00	11.60	11.70	12.90	14.90	15.10
Average market price 6/	\$/cwt	6.47	6.71	6.19	7.00	NA	NA

NA = Not available.

Note: Totals might not add because of rounding.

1/ Marketing year beginning August 1. 2/ Estimated. 3/ Projected as of July 1993. 4/ Includes the following quantities of broken kernel rice (type undetermined) not included in estimates of beginning stocks by type (in mil. cwt.): 1988/89, 1.5; 1989/90, 2.4; 1990/91, 1.4; 1991/92, 1.4; 1992/93, 1.4; 1993/94, 1.4.  
5/ Residual: unreported use, processing losses, and estimating errors. Use by type does not add to total rice use because of the difference in brokens between beginning and ending stocks. 6/ Marketing year weighted average price received by farmers. 7/ Includes imports.

Appendix table 2--Rough and milled rice (rough equivalent): Marketing year supply and disappearance, 1962/63-1993/94

Year beginning Aug. 1	Supply				Disappearance							Ending stocks--July 31--		
	Beginning stocks	Production	Imports	Total	Domestic use				Exports	Residual	Total disappearance	CCC inventory	Free	Total
					Food	Seed	Brewers	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	90.8	1.3	108.3	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
1977/78	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	37.6	2.9	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	32.7	3.8	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	35.2	3.4	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	45.2	3.0	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	52.8	2.9	15.0	70.7	84.2	7.0	161.9	8.7	42.7	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	0.2	31.2	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	60.0	3.6	15.4	79.0	77.2	3.0	159.2	0.0	26.4	26.4
1990/91	26.4	156.1	4.8	187.2	63.8	3.6	15.3	82.7	70.9	9.0	162.7	0.1	24.5	24.6
1991/92	24.6	157.5	5.3	187.3	65.6	3.9	15.2	84.7	66.4	9.0	160.1	0.4	26.8	27.3
1992/93 1/	27.3	179.1	6.0	212.4	70.0	3.8	14.7	88.5	79.0	9.0	176.5	0.5	35.4	35.9
1993/94 2/	35.9	168.0	6.5	210.4	73.2	3.8	14.5	91.5	80.0	9.0	180.5	0.5	29.4	29.9

1/ Estimated. 2/ Projected as of July 1993.

Appendix table 3--Long grain rough and milled rice (rough equivalent): Marketing year supply and disappearance, 1982/83-1993/94

Year beginning August 1	Supply			Disappearance			Ending stocks
	Beginning stocks	Production	Total 1/	Domestic and residual 2/	Exports	Total	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	128.9	54.9	60.8	115.7	13.3
1990/91	13.3	107.8	125.4	57.8	56.0	113.8	11.5
1991/92	11.5	109.1	125.4	61.5	51.0	112.5	12.9
1992/93 3/	12.9	128.1	146.3	63.3	63.5	126.8	19.5
1993/94 4/	19.5	116.6	141.7	64.8	63.5	128.3	13.4

1/ Includes imports. 2/ Use by type does not add to total rice use because of the difference in brokens between beginning and ending stocks. 3/ Estimated. 4/ Projected as of July 1993.

Appendix table 4--Medium/short grain rough and milled rice (rough equivalent): Marketing year supply and disappearance, 1982/83-1993/94

Year beginning August 1	Supply			Disappearance			Ending stocks
	Beginning stocks	Production	Total 1/	Domestic and residual 2/	Exports	Total	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	54.3	26.3	16.4	42.7	11.6
1990/91	11.6	48.3	60.4	33.8	14.9	48.8	11.7
1991/92	11.7	48.3	60.5	32.2	15.4	47.6	12.9
1992/93 3/	12.9	51.0	64.6	34.2	15.5	49.7	14.9
1993/94 4/	14.9	51.4	67.3	35.7	16.5	52.2	15.1

1/ Includes imports. 2/ Use by type does not add to total rice use because of the difference in brokens between beginning and ending stocks. 3/ Estimated. 4/ Projected as of July 1993.

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

Year beginning August 1	Rough milled	Total milled produced 1/	Milling yields	Total heads produced 1/	Milling yields
	-----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

1/ Includes brown rice.

Sources: Rice Miller's Association Monthly Statistical Statements.  
Rice Market News, Agricultural Marketing Service, USDA.

Appendix table 6--Rice milling rates, 1974/75-1991/92

Year beginning August 1	South 1/	California	United States
	Percent		
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 2/	70.80	69.53	70.51

1/ Arkansas, Louisiana, Mississippi, Missouri, and Texas. 2/ Preliminary.

Sources: Rice Miller's Association, Monthly Statistical Statements.  
Rice Market News, Agricultural Marketing Service, USDA.



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									
January 1:										
1980	31,021	15,038	57,278	581	103,918	3,137	810	2,123	6,070	
1981	26,179	21,111	48,817	6	96,113	3,055	929	2,556	6,540	
1982	48,404	22,952	59,117	911	131,384	2,735	907	1,414	5,056	
1983	34,551	24,151	76,070	200	134,972	2,960	858	2,401	6,219	
1984	30,681	19,541	64,143	344	114,709	3,867	456	1,395	5,718	
1985	32,426	19,535	74,514	797	127,272	3,343	524	2,058	5,925	
1986	36,737	23,768	81,967	514	142,986	3,674	461	465	4,600	
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	
April 1:										
1980	12,030	15,581	39,224	563	67,398	3,500	402	2,888	6,790	
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	39,464	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 2/	22,397	11,900	57,197	187	91,681	3,474	643	1,075	5,192	
August 1:										
1980	563	9,248	9,940	342	20,093	2,128	403	1,504	4,035	
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	

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

Appendix table 8--State and U.S. rice production by class, 1984-92

State	1984	1985	1986	1987	1988	1989	1990	1991	1992
1,000 cwt									
<b>Long grain:</b>									
Arkansas	46,320	50,712	49,462	45,259	57,447	57,458	53,034	58,328	66,912
California	4,288	3,834	1,520	2,592	4,200	2,250	1,314	1,168	1,264
Louisiana	13,899	14,418	14,061	12,079	17,538	13,128	14,805	12,500	19,278
Mississippi	8,265	10,058	10,692	10,098	13,275	13,395	14,250	12,320	15,675
Missouri	3,358	3,415	3,335	3,420	4,080	4,056	3,713	4,641	5,328
Texas	19,899	17,930	17,703	15,547	22,824	18,874	20,690	20,180	19,622
United States	96,029	100,367	96,773	88,995	119,364	109,161	107,806	109,137	128,079
<b>Medium grain:</b>									
Arkansas	6,400	3,809	4,544	7,656	7,236	6,322	6,912	8,392	8,940
California	20,520	18,628	21,917	22,496	22,050	26,315	28,215	26,489	31,096
Louisiana	8,033	5,838	5,319	7,031	6,542	8,360	11,664	12,235	9,568
Mississippi	1/	1/	1/	1/	505	1/	1/	1/	1/
Missouri	90	48	99	144	102	52	47	51	48
Texas	261	141	360	324	456	392	490	400	735
United States	35,304	28,464	32,239	37,651	36,891	41,441	47,328	47,567	50,387
<b>Short grain:</b>									
Arkansas	180	76	54	110	52	60	54	60	62
California	7,252	6,006	4,290	2,847	3,590	3,825	900	693	560
Missouri	45	1/	1/	1/	1/	1/	1/	1/	1/
United States	7,477	6,082	4,344	2,957	3,642	3,885	954	753	622
<b>Total grains:</b>									
Arkansas	52,900	54,597	54,060	53,025	64,735	63,840	60,000	66,780	75,914
California	32,060	28,468	27,727	27,935	29,840	32,390	30,429	28,350	32,920
Louisiana	21,932	20,256	19,380	19,110	24,080	21,488	26,469	24,735	28,846
Mississippi	8,265	10,058	10,692	10,098	13,780	13,395	14,250	12,320	15,675
Missouri	3,493	3,463	3,434	3,564	4,182	4,108	3,760	4,692	5,376
Texas	20,160	18,071	18,063	15,871	23,280	19,266	21,180	20,580	20,357
United States	138,810	134,913	133,356	129,603	159,897	154,487	156,088	157,457	179,088

1/ No grain estimates.

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

State	Area harvested				Yield			Production		
	1990	1991	1992	1993 1/	1990	1991	1992	1990	1991	1992
	-----1,000 acres-----				-----Pounds/acre-----			-----1,000 cwt-----		
<b>Long grain:</b>										
Arkansas	1,071	1,111	1,230	1,190	4,950	5,250	5,440	53,034	58,328	66,912
California	18	16	16	16	7,300	7,300	7,900	1,314	1,168	1,264
Louisiana	304	250	405	355	4,870	5,000	4,760	14,805	12,500	19,278
Mississippi	250	220	275	245	5,700	5,600	5,700	14,250	12,320	15,675
Missouri	79	91	111	99	4,700	5,100	4,800	3,713	4,641	5,328
Texas	343	335	336	291	6,030	6,024	5,840	20,690	20,180	19,622
United States	2,065	2,023	2,373	2,196	5,221	5,395	5,397	107,806	109,137	128,079
<b>Medium grain:</b>										
Arkansas	128	148	149	139	5,400	5,670	6,000	6,912	8,392	8,940
California	365	325	368	411	7,730	8,150	8,450	28,215	26,489	31,096
Louisiana	241	260	215	205	4,840	4,706	4,450	11,664	12,235	9,568
Mississippi	2/	2/	2/	2/	2/	2/	2/	2/	2/	2/
Missouri	1	1	1	1	4,700	5,100	4,800	47	51	48
Texas	10	8	15	7	4,900	5,000	4,900	490	400	735
United States	745	742	748	763	6,353	6,411	6,736	47,328	47,567	50,387
<b>Short grain:</b>										
Arkansas	1	1	1	1	5,400	6,000	6,200	54	60	62
California	12	9	8	10	7,500	7,700	7,000	900	693	560
United States	13	10	9	11	7,338	7,530	6,911	954	753	622
<b>Total:</b>										
Arkansas	1,200	1,260	1,380	1,330	5,000	5,300	5,500	60,000	66,780	75,914
California	395	350	392	437	7,700	8,100	8,400	30,429	28,350	32,920
Louisiana	545	510	620	560	4,860	4,850	4,650	26,469	24,735	28,846
Mississippi	250	220	275	245	5,700	5,600	5,700	14,250	12,320	15,675
Missouri	80	92	112	100	4,700	5,100	4,800	3,760	4,692	5,376
Texas	353	343	351	298	6,000	6,000	5,800	21,180	20,580	20,357
United States	2,823	2,775	3,130	2,970	5,529	5,674	5,722	156,088	157,457	179,088

1/ Forecasted. 2/ No medium grain estimated.

Source: Annual Crop Production 1992 Summary, January 1993, and Acreage, June 30, 1993, National Agricultural Statistics Service, USDA.

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

State	Area planted							1993/92 1/
	1987	1988	1989	1990	1991	1992	1993	
	-----1,000 acres-----							Percent
<b>Long grain:</b>								
Arkansas	885	1,084	1,039	1,110	1,149	1,249	1,249	100
California	36	60	30	18	16	16	16	100
Louisiana	265	395	310	310	290	410	360	88
Mississippi	200	255	240	255	225	280	265	95
Missouri	64	81	80	91	96	116	114	98
Texas	264	382	332	345	337	338	325	96
United States	1,714	2,257	2,031	2,129	2,113	2,409	2,329	97
<b>Medium grain:</b>								
Arkansas	133	135	110	129	150	150	150	100
California	299	320	335	370	326	370	414	112
Louisiana	160	150	195	245	270	220	210	95
Mississippi	2/	10	2/	2/	2/	2/	2/	2/
Missouri	3	2	1	1	1	1	1	100
Texas	6	8	8	10	8	15	10	67
United States	601	625	649	755	755	756	785	104
<b>Short grain:</b>								
Arkansas	2	1	1	1	1	1	1	100
California	39	50	50	12	9	8	10	125
United States	41	51	51	13	10	9	11	122
<b>Total:</b>								
Arkansas	1,020	1,220	1,150	1,240	1,300	1,400	1,400	100
California	374	430	415	400	351	394	440	112
Louisiana	425	545	505	555	560	630	570	90
Mississippi	200	265	240	255	225	280	265	95
Missouri	67	83	81	92	97	117	115	98
Texas	270	390	340	355	345	353	335	95
United States	2,356	2,933	2,731	2,897	2,878	3,174	3,125	98

1/ Intended plantings in 1993 as indicated by reports from farmers. 2/ No medium grain estimated.

Source: Crop Production and Prospective Plantings, March 1993.  
National Agricultural Statistics Service, USDA.  
Acreage, June 1993, National Agricultural Statistics Service, USDA.

Appendix table 11--U.S. rice acreage, yield, and production, 1958-92

Crop year 1/	Planted	Harvested	Diverted	Yield	Production
	-----1,000 acres-----			Lbs./acre	1,000 cwt
1958	1,439	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	1,739	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	1,090	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/	2,878	2,775	696	5,674	157,457
1992 3/	3,174	3,130	439	5,722	179,088

--- = Not applicable.

1/ The crop year for rice begins on August 1 and extends through July 31. 2/ Preliminary. 3/ Projected.

Appendix table 12--U.S. and State average rice yields per harvested acre, 1953-92

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	4,300	5,325	3,850	4,400	4,500	4,550
1969	4,318	4,750	5,525	3,500	4,450	4,600	3,950
1970	4,618	4,800	5,700	3,900	4,500	4,400	4,500
1971	4,718	5,050	5,200	3,800	4,600	4,800	5,100
1972	4,700	4,975	5,700	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	4,610	5,290	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	4,450	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	5,674	5,300	7,800	4,850	5,600	5,100	6,000
1992 1/	5,722	5,500	8,400	4,650	5,700	4,800	5,800

1/ Preliminary.



Appendix table 13--Proportional distribution of rice production, by type of grain, United States, 1953-92

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	69.3	30.2	0.5	157,457
1992 1/	71.5	28.1	0.4	179,088

1/ Estimated.

Appendix table 14--Use and ending stocks for rice, United States, 1953-92

Crop year	Food 1/	Seed	Brewer	Exports	Total use 2/	Ending stocks	Stocks-to-use ratio
							Percent
-----Mil. cwt-----							
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	37.6	2.9	13.5	68.9	131.8	71.5	54.0
1983	32.7	3.8	12.8	70.3	125.2	46.9	37.5
1984	35.2	3.4	13.9	62.1	122.6	64.7	52.8
1985	45.2	3.0	14.1	58.7	124.5	77.3	62.1
1986	52.8	2.9	15.0	84.2	161.9	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	60.0	3.6	15.4	77.2	159.2	26.4	16.6
1990	63.8	3.6	15.3	70.9	162.7	24.6	15.1
1991	65.6	3.9	15.2	66.4	160.1	27.3	17.0
1992 3/	70.0	3.8	14.7	79.0	176.5	35.9	20.3

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

Source: National Agricultural Statistics Service, USDA.

Appendix table 15--Prices and ending stocks for rice, 1953-92

Crop year	Ending stocks			Farm price	Loan rate	Target price	Direct payment
	CCC 1/	Free	Total				
	Mil. cwt			\$/cwt			
1953	1.2	6.3	7.5	5.19	4.84	---	---
1954	18.4	8.3	26.7	4.57	4.92	---	---
1955	27.4	7.2	34.6	4.81	4.66	---	---
1956	12.6	7.4	20.0	4.86	4.57	---	---
1957	12.0	6.2	18.2	5.11	4.72	---	---
1958	9.5	6.2	15.7	4.68	4.48	---	---
1959	6.9	5.3	12.2	4.59	4.38	---	---
1960	4.1	5.9	10.0	4.55	4.42	---	---
1961	0.3	5.0	5.3	5.14	4.71	---	---
1962	1.8	5.9	7.7	5.04	4.71	---	---
1963	1.4	6.1	7.5	5.01	4.71	---	---
1964	1.1	6.6	7.7	4.90	4.71	---	---
1965	0.6	7.6	8.2	4.93	4.50	---	---
1966	0.2	8.3	8.5	4.77	4.50	---	---
1967	0.1	6.7	6.8	4.97	4.55	---	---
1968	5.5	10.7	16.2	5.00	4.60	---	---
1969	6.4	10.0	16.4	4.95	4.72	---	---
1970	9.5	9.1	18.6	5.17	4.86	---	---
1971	2.7	8.7	11.4	5.34	5.07	---	---
1972	0.1	5.0	5.1	6.73	5.27	---	---
1973	0.0	7.8	7.8	13.80	6.07	---	---
1974	0.0	7.1	7.1	11.20	7.54	---	---
1975	18.7	18.2	36.9	8.35	8.52	---	---
1976	18.6	21.9	40.5	7.02	6.19	8.25	0.00
1977	10.8	16.6	27.4	9.49	6.19	8.25	0.00
1978	8.3	23.2	31.6	8.16	6.40	8.53	0.78
1979	1.7	24.0	25.7	10.50	6.79	9.05	0.00
1980	0.0	16.5	16.5	12.80	7.12	9.49	0.00
1981	17.5	31.5	49.0	9.05	8.01	10.68	0.28
1982	22.3	49.2	71.5	7.91	8.14	10.85	2.71
1983	25.0	21.9	46.9	8.57	8.14	11.40	2.77
1984	44.3	20.4	64.7	8.04	8.00	11.90	3.76
1985	43.6	33.7	77.3	6.53	8.00	11.90	3.90
1986	8.7	42.7	51.4	3.75	7.20	11.90	4.70
1987	0.0	31.4	31.4	7.27	6.84	11.66	4.82
1988	0.0	26.7	26.7	6.83	6.63	11.15	4.31
1989	0.0	26.4	26.4	7.35	6.50	10.80	3.56
1990	0.1	24.5	24.6	6.70	6.50	10.71	4.16
1991	0.4	26.8	27.3	7.58	6.50	10.71	3.07
1992 2/	2.0	36.6	35.9	5.90-6.00	6.50	10.70	4.21

--- = Not applicable.

1/ Commodity Credit Corporation. 2/ Estimated.

Appendix table 16--Rice program provisions and income factors, 1986-93

Item	Unit	Crop year							
		1986	1987	1988	1989	1990	1991	1992	1993
Target price	\$/cwt	11.90	11.66	11.15	10.80	10.71	10.71	10.71	10.71
Statutory loan rate	"	7.20	6.84	6.63	6.50	6.50	6.50	6.50	6.50
Season-average price	"	3.75	7.27	6.83	7.35	6.70	7.58	NA	NA
5-month price	"	3.87	5.71	6.84	7.24	6.25	7.64	6.44	NA
Deficiency payment	"	4.70	4.82	4.31	3.56	4.16	3.07	4.21	NA
Acreage reduction/paid diversion	Pct.	35	35	25	25	20	5	0	5
Participation rate	"	94	96	94	94	94	95	96	95

NA = Not available.

Appendix table 17--Class loan rates and differentials, 1985-93

Item	Crop year								
	1985	1986	1987	1988	1989	1990	1991	1992	1993
	\$/cwt								
Milled rice:									
Long whole kernels	14.53	12.44	11.36	10.89	10.81	10.84	10.74	10.74	10.75
Medium and short whole kernels	10.50	10.44	10.36	9.89	9.81	9.84	9.74	9.74	9.75
Broken kernels	6.02	4.98	5.68	5.45	5.41	5.42	5.37	5.37	5.37
Differential (milled basis) 1/	4.03	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Rough rice 2/:									
Average, all classes	8.00	7.20	6.84	6.63	6.50	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	6.66
Average, medium grain	6.49	6.36	6.54	6.33	6.13	6.21	6.11	6.13	6.13
Average, short grain	6.49	6.44	6.39	5.98	5.98	6.12	6.07	6.13	6.13

1/ The loan differential (milled basis) is the difference between the class whole kernel loan rates. 2/ The rough rice loan rate for each class of rice is the sum of the whole kernels' loan rate weighted by its milling yield (average 56 percent) and the broken kernels' loan rate weighted by its milling yield (average 12 percent).

Appendix table 18--World market rice prices, loan rate basis 1/

Date	Milled kernel rates				Rough rates		
	Long	Medium	Short	Broken	Long	Medium	Short
	Cents/lb.				\$/cwt		
<b>1986:</b>							
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
<b>1987:</b>							
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
<b>1988:</b>							
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
<b>1989:</b>							
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

See footnote at end of table.

Continued--

Appendix table 18--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-----		
<b>1989:</b>							
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
<b>1990:</b>							
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
<b>1991:</b>							
December 26 - January 22	8.30	7.23	7.24	4.15	5.09	4.47	4.40
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	9.71	8.76	8.72	4.85	6.01	5.50	5.44
<b>1992:</b>							
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	8.63	7.81	7.78	4.32	5.35	4.92	4.89
<b>1993:</b>							
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 - June 29	6.75	6.06	6.03	3.38	4.25	3.83	3.80

1/ Repayment rates for 1985-crop loans are the world price for the specified class of rice. Repayment rates for 1986 crop loans and 1987 crop loans are the higher of the world price or 50 percent of the loan rate for the specified class of rice. Repayment rates for 1988-crop loans are the higher of the world price or 60 percent of the loan rate for the specified class of rice. Repayment rates for 1989-1993 crop loans are the higher of the world price or 70 percent of the loan rate for the specified class of rice.

Appendix table 19--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	1991/92	1992/93
-----											
\$/cwt											
Month:											
August	7.31	8.41	8.22	7.86	4.02	3.82	7.49	7.41	6.66	7.16	6.60
September	7.75	8.48	8.17	7.55	3.86	4.34	6.97	7.59	6.21	7.67	6.41
October	7.73	8.80	8.08	7.73	3.83	6.25	6.85	7.41	5.95	7.65	6.40
November	7.78	8.80	8.13	7.84	3.90	7.53	6.81	7.03	6.21	7.84	6.42
December	8.06	8.66	8.08	7.71	3.74	7.64	6.68	7.05	6.12	7.98	6.39
January	8.05	8.57	8.09	7.90	3.55	7.93	6.58	7.44	6.38	7.84	6.36
February	8.26	8.85	7.72	7.86	3.84	9.37	6.67	7.57	6.69	7.97	6.06
March	7.99	8.63	8.17	7.60	3.62	9.22	6.60	7.55	7.07	7.78	5.64
April	8.23	8.49	8.20	5.32	3.63	8.92	6.74	7.41	7.43	7.46	5.52
May	8.23	8.24	7.91	4.52	3.71	7.97	6.78	7.28	7.45	7.18	5.24
June	7.88	8.20	7.83	4.04	3.62	7.69	7.05	7.18	7.43	6.97	5.02
July	7.95	8.18	7.54	3.86	3.49	7.94	7.45	7.05	7.18	6.99	4/ 5.03
Season average price:											
12 months 1/	7.91	8.57	8.04	6.53	3.75	7.27	6.83	7.35	6.70	7.58	5.90-6.00
5 months 2/	7.69	8.63	8.14	7.73	3.87	5.71	6.84	7.24	6.25	7.64	6.44
State: 3/											
Arkansas	8.61	9.18	8.51	6.70	3.68	7.60	6.90	7.46	6.75	7.69	6.30
California	6.65	6.96	6.43	5.33	3.18	6.72	6.15	6.27	5.93	6.65	5.55
Louisiana	8.05	8.90	8.20	7.24	4.03	7.65	6.90	7.81	6.73	7.67	5.95
Mississippi	8.66	9.53	8.88	7.10	3.91	7.90	7.02	7.57	6.99	8.48	6.45
Missouri	8.65	9.49	8.70	7.05	3.57	7.41	7.22	7.54	7.21	7.81	6.30
Texas	8.94	9.97	8.90	7.38	4.22	8.07	7.24	8.02	7.41	8.15	6.45
Type:											
Long grain	8.56	9.36	8.66	6.75	3.82	7.77	6.96	7.59	6.94	7.83	NA
Medium and short grain	6.91	7.13	6.66	5.87	3.55	6.36	6.47	6.71	6.19	7.00	NA

NA = Not available.

1/ Marketing year--August-July. 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/ Preliminary.

Source: Crop Values and Agricultural Prices, National Agricultural Statistics Service, USDA.

Appendix table 20--Milled rice: Average price, f.o.b. mills, at selected milling centers

Year and type	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June 1/	July	Simple average
-----													
\$/cwt, bagged													
Southwest Louisiana													
Long 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	17.70	18.00
1985/86	17.50	17.50	17.50	17.50	17.50	17.50	17.50	17.50	15.50	12.70	12.75	12.42	16.10
1986/87	10.60	10.25	10.25	9.90	10.10	10.10	9.95	9.90	10.40	10.40	10.50	10.50	10.25
1987/88	10.70	12.05	17.70	19.75	19.70	20.60	24.45	24.50	24.00	20.75	18.85	17.90	19.25
1988/89	16.80	16.10	14.50	14.50	14.10	14.00	14.20	13.80	13.50	15.40	15.50	15.60	14.85
1989/90	16.40	15.90	15.60	15.00	14.65	15.40	15.65	15.40	15.65	15.80	15.65	15.30	15.55
1990/91	14.65	13.95	13.75	14.00	14.00	14.15	15.45	15.75	16.40	16.50	17.25	16.95	15.25
1991/92	16.40	16.55	16.60	17.15	17.35	17.30	17.30	16.60	16.45	15.70	15.10	15.20	16.48
1992/93	15.00	14.75	14.70	14.45	14.25	13.40	13.00	12.60	12.15	11.90	11.75		
Houston, Texas													
Long 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	21.69
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	19.65	20.00	20.00	20.00	20.25	20.25	20.25	20.10	19.50	19.50	19.50	19.90
1984/85	19.40	18.70	18.75	18.75	18.75	18.75	18.75	18.75	18.75	18.75	18.75	17.40	18.70
1985/86	18.70	18.30	18.30	18.30	18.30	17.90	17.50	17.30	17.25	13.75	13.50	13.00	16.85
1986/87	13.00	13.00	13.00	13.00	13.00	11.15	10.50	10.50	10.50	10.50	10.50	10.50	11.60
1987/88	10.50	11.25	19.00	21.00	21.00	21.00	23.65	24.05	24.00	21.70	20.50	20.50	19.85
1988/89	18.20	16.00	15.25	15.00	15.00	15.00	15.00	15.00	15.00	15.15	15.50	16.50	15.55
1989/90	16.50	16.50	16.50	16.00	15.70	15.50	16.25	16.25	16.25	16.25	16.25	16.25	16.20
1990/91	15.80	14.50	14.50	14.50	14.50	14.50	16.00	16.00	16.00	16.35	17.00	17.00	15.55
1991/92	17.00	17.00	16.65	17.00	17.50	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	15.80	15.25	15.15	15.00	15.00	14.30	13.60		
Arkansas													
Long 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	18.40	18.25	18.25	18.25	18.00	18.00	18.00	17.94	17.75	17.80	17.95	17.75	18.00
1985/86	17.75	17.50	17.40	17.25	17.25	17.25	17.25	17.25	15.50	13.25	13.00	13.00	16.15
1986/87	11.90	11.55	11.75	11.90	11.90	11.90	11.90	11.90	11.65	11.50	11.75	11.75	11.80
1987/88	11.90	13.25	18.50	20.50	20.20	21.20	24.05	24.05	24.00	22.50	21.15	19.00	20.00
1988/89	18.30	16.90	15.10	14.75	15.10	14.80	14.75	14.75	14.75	15.60	15.85	16.95	15.65
1989/90	17.20	16.65	15.95	15.70	15.75	15.90	16.00	16.00	16.00	16.00	16.00	16.00	16.10
1990/91	15.50	15.00	14.50	14.50	14.75	14.75	15.75	15.75	15.95	16.75	17.25	17.25	15.65
1991/92	16.85	16.55	16.50	17.40	17.30	17.25	17.25	17.00	16.90	16.20	15.70	15.50	16.70
1992/93	15.65	15.45	15.40	15.40	15.05	13.80	13.65	13.50	13.50	12.95	12.75		
Southwest Louisiana													
Medium 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	16.30	18.00	16.20	16.00
1985/86	16.00	16.00	16.00	16.00	16.00	16.00	15.70	15.50	14.60	11.90	12.00	11.35	14.75
1986/87	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.50	11.25	11.15	11.20	11.20	10.45
1987/88	11.10	11.95	16.60	17.25	16.75	18.50	19.80	20.15	20.00	18.00	17.40	16.70	17.00
1988/89	16.40	16.20	14.50	14.50	14.00	13.90	13.75	13.50	13.50	14.60	14.65	15.75	14.60
1989/90	15.55	15.30	14.80	14.30	14.04	14.80	15.13	15.13	15.50	15.75	15.65	15.30	15.10
1990/91	14.75	13.90	13.50	13.50	13.50	14.90	14.90	15.05	16.05	16.15	16.50	16.35	14.90
1991/92	15.85	16.00	16.00	16.00	16.00	16.00	15.90	15.50	15.50	15.15	14.50	14.50	15.60
1992/93	14.50	14.00	14.50	14.15	13.40	13.40	13.00	12.80	12.40	11.94	12.00		

See footnotes at end of table.

Continued--



Appendix table 20--Milled rice: Average price, f.o.b. mills, at selected milling centers--Continued

Year and type	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June 1/	July	Simple average
\$/cwt, bagged													
Arkansas													
Medium 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	17.20	17.00	17.00	17.00	17.35
1984/85	16.90	16.70	16.35	16.20	16.00	15.75	16.25	15.95	16.30	16.25	16.25	15.90	16.25
1985/86	16.00	16.00	16.20	16.50	16.50	16.50	16.50	16.25	14.80	12.35	12.50	12.50	15.20
1986/87	12.25	11.60	12.00	12.00	12.00	12.00	12.65	12.65	12.65	12.35	12.25	12.25	12.20
1987/88	12.25	12.65	16.70	18.00	17.85	18.70	20.50	20.50	20.50	19.00	18.90	18.00	17.80
1988/89	17.30	16.25	14.75	15.00	15.00	14.70	14.75	14.75	15.25	15.40	15.40	16.75	15.45
1989/90	17.20	16.65	15.95	15.45	15.25	15.40	15.50	15.50	15.50	15.50	15.50	15.50	15.75
1990/91	15.25	14.75	14.50	14.65	14.75	14.75	15.75	15.75	15.90	16.60	17.00	17.00	15.55
1991/92	16.60	16.10	16.10	16.70	16.65	16.65	16.65	16.35	16.40	15.65	15.35	15.25	16.20
1992/93	15.50	15.45	15.40	15.40	15.05	13.55	13.65	13.70	13.75	13.40	13.25		
California													
Medium 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	15.40	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	15.95	15.90	16.00	15.75	15.75	15.75	15.59	15.25	15.25	15.65
1986/87	15.00	14.50	13.75	12.65	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	13.00
1987/88	12.50	13.00	16.15	17.00	17.00	16.85	18.50	18.50	18.50	18.00	18.00	18.00	16.85
1988/89	17.85	17.75	16.25	15.75	15.75	15.50	15.50	16.45	17.25	17.25	17.25	17.90	16.70
1989/90	18.45	18.25	17.50	16.55	16.00	15.75	15.75	15.70	15.50	14.90	15.00	15.25	16.20
1990/91	14.80	14.90	14.25	15.25	15.25	15.60	16.25	16.25	16.25	18.10	18.25	17.90	16.10
1991/92	17.65	17.50	17.00	17.80	18.00	18.00	18.05	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	18.05	17.50	17.50	17.30		
California													
Short 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	27.70
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	15.95	15.90	16.00	15.75	15.75	15.75	15.60	15.25	15.15	15.65
1986/87	15.00	14.50	13.75	12.80	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	13.00
1987/88	12.50	13.00	16.15	17.00	17.00	16.85	18.50	18.50	18.50	18.00	18.00	18.00	16.85
1988/89	17.85	17.75	16.25	15.75	15.75	15.50	15.50	16.40	17.25	17.25	17.25	17.90	16.70
1989/90	18.20	18.25	17.50	16.55	16.00	15.60	15.75	15.70	15.50	14.90	15.00	15.25	16.20
1990/91	14.80	14.90	14.25	15.25	15.25	15.60	16.25	16.25	16.25	18.10	18.25	17.90	16.10
1991/92	17.65	17.40	17.00	17.80	18.00	18.00	18.05	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	18.05	17.50	17.50	17.30		

1/ June 1993 data are preliminary. 2/ U.S. No. 2--broken not to exceed 4 percent. 3/ U.S. No. 1.

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

Appendix table 21--Rice byproducts: Monthly average price, Southwest Louisiana

Year and type	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June 1/	July	Simple average
-----													
\$/cwt, bagged 2/													
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	10.80	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	9.20	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	8.80	7.75	7.75	7.75	9.45
1986/87	7.75	7.75	7.75	7.65	7.75	7.75	7.75	7.70	7.60	7.60	5.85	5.65	7.40
1987/88	5.75	6.00	6.90	7.50	7.50	7.75	7.70	7.75	7.75	7.75	7.85	8.25	7.40
1988/89	8.15	8.10	8.50	8.00	8.00	8.00	10.05	9.70	9.70	10.70	10.60	10.45	9.15
1989/90	9.95	9.65	9.00	8.10	8.00	8.00	8.50	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	7.90	7.50	8.50	8.60	9.00	9.15	8.00
1991/92	8.65	8.50	9.20	9.50	9.50	9.50	9.15	8.75	8.80	8.75	9.00	9.00	9.05
1992/93	9.00	9.00	8.90	8.90	8.75	8.40	7.80	7.75	7.65	7.50	7.35		
-----													
Rice bran, f.o.b. mills: \$/ton 3/													
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	62.15	70.00	94.00	108.35	120.85	98.50	57.50	50.00	67.50	60.00	NQ	59.00	77.10
1984/85	69.15	49.50	45.15	53.75	69.15	85.00	77.50	53.25	40.50	45.67	45.00	47.50	56.75
1985/86	43.35	40.00	20.00	42.50	62.50	86.00	65.00	51.65	NQ	25.75	20.00	18.35	43.20
1986/87	16.25	23.80	26.50	34.00	53.15	50.00	36.70	28.40	23.50	20.65	18.80	17.00	29.05
1987/88	19.50	27.40	46.70	54.50	54.20	68.35	49.65	47.25	60.00	45.00	44.20	85.00	50.15
1988/89	64.00	58.10	64.00	64.00	70.65	71.40	52.25	64.10	65.00	45.85	46.65	48.75	59.55
1989/90	55.75	55.40	60.25	69.00	76.20	84.40	51.00	49.65	51.50	71.50	75.35	75.90	64.65
1990/91	72.25	52.40	50.75	52.00	56.00	66.40	51.75	48.65	57.65	47.35	50.25	57.50	55.25
1991/92	42.85	36.80	43.00	54.50	72.00	75.00	56.50	44.65	41.40	40.90	42.25	45.40	49.60
1992/93	43.75	38.40	41.15	58.60	72.65	79.25	59.50	51.50	49.40	31.50	40.00		
-----													
Rice millfeed, f.o.b. mills: \$/ton 3/													
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	30.45
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	25.40	33.30	42.10	61.65	53.00	22.50	24.75	31.20	21.25	25.00	27.75	32.65
1984/85	23.50	18.75	18.65	19.40	24.50	31.75	34.70	22.00	17.00	16.90	15.00	14.50	21.40
1985/86	13.00	13.00	8.00	15.40	19.50	34.10	NQ	19.50	20.85	8.50	5.00	4.50	14.65
1986/87	5.15	10.00	10.00	11.25	15.00	13.75	8.15	6.15	4.50	3.50	3.65	4.25	7.95
1987/88	8.50	9.50	21.35	22.70	21.50	28.35	17.40	18.85	22.50	16.00	19.50	40.00	20.50
1988/89	21.50	17.90	18.00	21.50	24.00	23.60	20.00	19.00	20.00	15.00	15.65	16.00	19.35
1989/90	17.15	16.75	14.00	22.65	23.70	27.70	14.20	14.65	16.50	22.40	25.00	25.00	19.95
1990/91	28.75	19.00	19.25	19.00	21.50	25.25	17.15	18.50	17.50	13.85	14.25	16.30	19.20
1991/92	12.15	11.20	13.40	19.90	39.50	37.15	17.50	14.65	14.75	14.15	15.00	16.15	18.80
1992/93	14.75	13.50	14.50	17.50	27.40	37.15	25.40	18.70	17.00	8.90	8.80		

NQ = Not quoted.

1/ June 1993 data are preliminary. 2/ U.S. No. 4 or better. 3/ Prices quoted as bulk.

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

Appendix table 22--Brewers' prices: Monthly average price for Arkansas brewers' rice and New York brewers' corn grits

Year and state	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June 1/	July	Simple average
	\$/cwt												
<b>Arkansas 2/:</b>													
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	6.90	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	6.80	6.75	7.15
1985/86	6.75	6.70	6.50	6.50	6.50	6.30	6.00	6.00	5.75	5.50	5.50	5.50	6.15
1986/87	5.20	5.00	4.75	4.75	4.65	4.45	4.20	4.20	4.20	4.20	4.10	3.75	4.45
1987/88	4.00	4.15	6.00	6.20	6.10	6.10	6.95	7.25	7.25	6.90	7.40	8.35	6.40
1988/89	8.50	8.70	8.75	8.75	8.75	8.60	10.45	10.20	10.20	11.00	11.00	10.65	9.65
1989/90	9.65	9.00	8.50	8.00	7.75	7.75	7.75	7.45	6.85	6.60	6.60	7.05	7.75
1990/91	7.00	6.10	6.20	6.50	6.25	6.05	6.65	7.10	8.00	8.00	8.00	8.00	7.00
1991/92	8.00	8.40	8.70	9.00	9.00	8.90	8.50	8.65	8.25	8.25	8.25	8.25	8.50
1992/93	8.25	8.25	8.25	7.90	7.30	7.20	7.00	6.90	6.40	6.25	6.00		
<b>New York 3/:</b>													
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	9.18
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	8.78
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	7.98
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	7.47
1978/79	7.63	7.47	7.43	7.59	7.76	8.10							7.66
1979/80		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	10.51
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	10.54
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	11.01
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	9.97
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	11.53
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	11.69
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	11.61
1991/92	11.71	11.50	11.55	11.41	11.45	11.44	11.75	11.77	11.77	11.51	11.56	11.84	11.58
1992/93	11.25	11.30	11.21	11.29	11.25	11.20	11.18	11.44	11.65	11.63	11.46		

1/ June 1993 data are preliminary.

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

Appendix table 23--Thailand milled rice prices, f.o.b. Bangkok 1/

Type	1981/82		1982/83		1983/84		1984/85		1985/86		1986/87	
	BOT 2/	NPQ 3/	BOT	NPQ	BOT	NPQ	BOT	NPQ	BOT	NPQ	BOT	NPQ
	\$/metric ton											
100% 1st grade:												
August	528	NA	330	NA	326	NA	317	NA	250	NA	261	NA
September	517	NA	313	NA	349	NA	298	NA	250	NA	256	NA
October	485	NA	295	NA	336	NA	295	NA	250	NA	255	NA
November	458	NA	299	NA	333	NA	273	NA	250	NA	253	NA
December	409	NA	307	NA	321	NA	270	NA	250	NA	245	NA
January	378	NA	301	NA	310	NA	270	NA	280	NA	249	NA
February	364	NA	318	NA	302	NA	261	NA	273	NA	248	NA
March	370	NA	330	NA	303	NA	261	NA	257	NA	255	NA
April	356	NA	330	NA	305	NA	262	NA	246	NA	257	NA
May	342	NA	330	NA	302	NA	262	NA	240	NA	258	NA
June	334	NA	319	NA	301	NA	262	NA	246	NA	257	NA
July	325	NA	311	NA	318	NA	250	NA	250	NA	258	NA
Average	406	NA	315	NA	317	NA	273	NA	253	NA	254	NA
100% 2nd grade:												
August	508	NA	300	NA	286	NA	281	268	220	193	228	191
September	497	NA	283	NA	309	NA	260	243	220	197	221	179
October	465	NA	266	NA	300	NA	260	237	220	213	220	180
November	438	NA	269	NA	293	NA	238	208	220	202	218	180
December	389	NA	277	NA	281	NA	234	206	220	202	210	172
January	352	NA	270	NA	268	NA	235	201	245	191	214	178
February	332	NA	280	NA	263	NA	230	195	247	188	213	191
March	340	NA	290	NA	263	NA	231	197	231	186	220	204
April	326	NA	290	NA	265	NA	232	197	221	178	227	204
May	312	NA	290	NA	263	NA	230	202	215	177	228	202
June	304	NA	279	NA	266	NA	230	196	219	179	227	198
July	295	NA	271	NA	283	NA	220	186	220	185	227	196
Average	380	NA	280	NA	278	NA	240	211	225	191	221	190
5% broken:												
August	498	NA	287	NA	279	NA	272	NA	210	NA	214	185
September	487	NA	270	NA	299	NA	253	NA	210	NA	206	173
October	455	NA	255	NA	290	NA	250	NA	210	NA	205	175
November	428	NA	258	NA	283	NA	228	NA	210	NA	205	174
December	379	NA	266	NA	271	NA	225	NA	210	NA	195	167
January	342	NA	260	NA	258	NA	230	NA	240	NA	199	172
February	324	NA	270	NA	253	NA	221	NA	234	NA	198	186
March	325	NA	282	NA	253	NA	221	NA	217	NA	206	198
April	311	NA	282	NA	256	NA	222	NA	206	NA	212	199
May	299	NA	280	NA	253	NA	223	NA	200	NA	213	198
June	291	NA	269	NA	256	NA	223	NA	204	NA	212	193
July	282	NA	261	NA	273	NA	210	NA	205	NA	212	191
Average	368	NA	270	NA	269	NA	231	NA	213	NA	206	184

See footnote at end of table.

Continued--

Appendix table 23--Thailand milled rice prices, f.o.b. Bangkok 1/--Continued

Type	1987/88		1988/89		1989/90		1990/91		1991/92		1992/93	
	\$/metric ton											
	BOT 2/	NPQ 3/	BOT	NPQ	BOT	NPQ	BOT	NPQ	BOT	NPQ	BOT	NPQ
100% 1st grade:												
August	270	NA	355	NA	504	NA	315	NA	353	NA	328	NA
September	296	NA	355	NA	390	NA	312	NA	350	NA	322	NA
October	319	NA	355	NA	374	NA	318	NA	340	NA	311	NA
November	318	NA	355	NA	356	NA	314	NA	339	NA	310	NA
December	312	NA	340	NA	355	NA	310	NA	328	NA	311	NA
January	330	NA	335	NA	355	NA	361	NA	325	NA	315	NA
February	355	NA	NA	NA	355	NA	378	NA	325	NA	314	NA
March	349	NA	324	NA	343	NA	371	NA	325	NA	301	NA
April	349	NA	348	NA	341	NA	343	NA	327	NA	291	NA
May	348	NA	357	NA	332	NA	341	NA	327	NA	269	NA
June	351	NA	383	NA	318	NA	344	NA	329	NA	277	NA
July	355	NA	410	NA	310	NA	350	NA	330	NA		
Average	329	NA	356	NA	361	NA	338	NA	333	NA		
100% 2nd grade:												
August	238	208	315	274	373	337	285	268	325	309	303	278
September	263	255	315	279	360	328	282	269	325	300	297	267
October	287	272	315	279	344	314	288	290	315	284	286	260
November	286	260	315	278	326	271	287	279	314	283	285	261
December	279	261	300	265	325	279	285	272	303	277	286	265
January	295	295	290	268	325	284	336	312	300	284	290	270
February	320	310	285	276	325	307	353	336	300	287	289	267
March	314	301	294	282	313	297	346	321	300	286	276	243
April	314	297	318	302	311	284	318	295	302	287	261	216
May	308	274	327	316	304	267	328	298	302	284	239	194
June	311	272	353	337	288	264	319	302	304	278	237	199
July	315	279	380	357	280	NA	325	315	305	289		
Average	294	273	317	293	323	NA	313	296	308	287		
5% broken:												
August	222	204	305	269	363	332	274	260	315	298	293	269
September	251	250	305	274	350	320	272	259	315	290	287	256
October	277	267	305	273	334	304	278	281	305	277	276	250
November	276	254	305	272	316	264	276	271	304	274	275	252
December	269	256	290	260	315	272	275	264	293	270	276	256
January	285	291	280	264	315	277	326	305	290	276	280	262
February	310	305	275	269	315	300	343	326	290	278	279	254
March	304	294	284	277	303	289	336	311	290	277	266	230
April	304	288	308	298	301	276	308	286	291	279	251	206
May	298	257	317	310	290	260	306	288	292	275	229	185
June	301	266	343	331	278	NA	309	292	294	268	227	189
July	305	273	370	351	270	NA	315	306	295	279		
Average	284	267	307	287	312	NA	301	287	298	278		

NA = Not available.

1/ Includes export premium, export tax, and cost of bags. Packed in bags of 100 kg net. 2/ Thailand's posted board of Trade prices. 3/ Nominal price quotes, Bangkok. In mid-1984, price quotes began to vary significantly from the posted Board of Trade prices. Since then, the nominal quotes have appeared to be more representative of known actual prices than those posted by the Board of Trade for most grades of rice.

Appendix table 24--Milled rice: Average cost and freight ARAG quotations 1/

Type	1980/81	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93 4/
	\$/metric ton												
U.S. no. 2 milled, 4%, container, FAS 2/:													
August	552	629	515	535	500	477	299	316	325	354	306	364	332
September	567	601	463	535	485	475	285	349	303	357	287	373	336
October	602	587	449	530	493	475	305	NQ	303	324	284	379	333
November	639	562	446	520	496	475	303	415	310	314	314	381	314
December	656	538	451	518	496	470	249	413	300	312	325	380	305
January	661	517	459	518	496	454	224	442	292	338	333	379	289
February	670	508	488	530	496	455	224	496	290	356	349	378	276
March	672	485	496	534	496	455	224	493	290	348	364	363	263
April	672	469	504	531	496	383	224	455	292	342	372	343	248
May	675	474	513	529	496	325	240	420	317	338	380	333	243
June	662	487	532	529	495	291	267	329	356	336	389	313	244
July	649	506	535	513	490	286	277	355	368	333	378	322	
Average	640	530	488	527	495	418	260	408	312	338	340	359	
Thai SWR 100% Grade A, bulk 3/:													
August	535	603	369	383	382	265	303	300	380	448	401	415	408
September	543	600	363	410	360	264	297	312	380	433	395	413	400
October	539	570	347	392	350	283	292	349	378	407	402	401	400
November	545	520	352	369	302	310	275	341	375	384	395	388	400
December	550	483	363	355	294	290	260	338	375	376	400	382	400
January	580	438	360	351	292	290	260	365	360	379	418	379	398
February	614	424	366	353	290	270	262	395	360	395	439	385	399
March	627	426	389	354	280	269	276	396	360	394	428	388	385
April	620	422	376	355	274	258	282	383	365	371	398	397	367
May	632	408	382	358	265	255	275	377	400	379	398	399	351
June	657	376	372	363	265	280	273	366	412	396	391	402	350
July	641	346	367	382	250	283	268	383	437	399	395	408	
Average	590	468	367	369	300	276	279	359	382	397	405	396	
Thai SWR 100% Grade B, bulk 3/:													
August	520	583	342	345	333	237	243	250	322	386	311	357	328
September	528	579	338	368	317	239	230	280	320	369	310	341	319
October	523	549	322	351	301	239	225	316	320	359	330	323	307
November	528	497	328	329	272	260	219	303	320	331	321	320	302
December	535	463	338	317	260	245	215	304	320	322	304	319	304
January	549	418	336	315	258	240	218	328	315	328	359	322	308
February	588	402	335	315	254	235	236	357	320	350	386	325	313
March	602	405	348	316	255	234	244	359	325	343	365	326	289
April	600	401	336	315	241	223	246	340	328	326	335	325	269
May	611	382	342	314	244	222	241	340	360	309	344	327	246
June	633	352	335	319	244	229	238	311	389	308	347	320	240
July	619	319	330	337	228	230	235	324	402	307	350	328	
Average	570	446	336	328	267	236	232	318	337	336	339	328	

NQ = Not quoted.

1/ ARAG = composite of ports near Rotterdam. 2/ FAS, container, gulf port quote. All other prices are C &amp; 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/ June 1993 data are preliminary.

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

Appendix table 25--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/
	Million hectares	Mt/ha	Rough	Milled				
-----Million metric tons-----								
Percent								
1961/62	115.7	1.86	215.7	147.3	6.3	149.2	8.5	5.7
1962/63	119.6	1.91	228.2	155.2	7.3	151.3	12.4	8.2
1963/64	121.5	2.04	248.4	169.1	7.7	165.2	16.2	9.8
1964/65	125.4	2.12	265.6	180.8	8.2	179.8	17.3	9.6
1965/66	124.0	2.04	253.5	172.9	7.9	172.2	18.0	10.4
1966/67	125.7	2.09	262.1	179.0	7.8	178.4	18.6	10.4
1967/68	127.0	2.18	276.9	188.9	7.2	186.5	20.9	11.2
1968/69	128.7	2.22	285.8	194.9	7.5	191.0	24.8	13.0
1969/70	131.5	2.24	295.2	201.1	8.2	199.7	26.1	13.1
1970/71	132.7	2.35	312.5	213.0	8.6	210.4	28.8	13.7
1971/72	134.9	2.35	316.6	215.8	8.7	216.2	28.4	13.1
1972/73	132.7	2.31	306.2	208.9	8.4	213.9	23.4	10.9
1973/74	136.4	2.45	333.8	227.6	7.7	222.4	28.5	12.8
1974/75	137.9	2.40	331.1	225.7	7.3	226.0	28.2	12.5
1975/76	143.0	2.50	357.4	243.1	8.4	232.5	38.9	16.7
1976/77	141.5	2.45	346.8	235.8	10.6	236.9	37.8	16.0
1977/78	143.6	2.57	368.7	250.6	9.6	244.5	43.9	18.0
1978/79	143.8	2.68	385.4	262.4	11.9	252.2	54.1	21.5
1979/80	141.4	2.66	376.6	256.8	12.0	258.1	52.8	20.5
1980/81	144.2	2.73	393.8	267.8	12.1	272.7	47.8	17.5
1981/82	144.9	2.81	407.6	277.4	10.9	281.4	43.7	15.5
1982/83	140.4	2.96	416.1	283.6	10.9	283.9	43.4	15.3
1983/84	144.1	3.11	448.5	305.3	11.6	301.9	46.8	15.5
1984/85	144.0	3.22	463.8	316.0	10.9	307.3	55.5	18.0
1985/86	144.8	3.22	466.6	317.5	11.8	318.0	55.0	17.3
1986/87	145.1	3.21	465.5	316.7	12.6	320.8	50.9	15.9
1987/88	141.7	3.27	463.8	314.5	11.2	319.9	45.5	14.2
1988/89	145.4	3.35	487.4	330.0	14.0	327.7	47.8	14.6
1989/90	146.8	3.45	505.8	342.6	11.7	335.9	54.5	16.2
1990/91	147.1	3.52	518.0	350.7	12.0	345.7	59.5	17.2
1991/92	145.5	3.54	514.9	348.2	14.1	352.8	54.9	15.6
1992/93 7/	144.9	3.57	518.0	350.4	13.5	352.9	52.4	14.8
1993/94 8/	146.8	3.52	516.0	348.6	13.6	354.4	44.9	12.7

1/ Yields are based on rough production. 2/ Production is expressed on both rough and milled basis; stocks, exports, and utilization are expressed on a milled basis. 3/ Exports quoted on calendar year basis. Trade data has been adjusted (July 1993) to exclude EC intra-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, and parts of Eastern Europe. 6/ Stocks-to-use represents the ratio of marketing year ending stocks to total utilization. 7/ Preliminary. 8/ Forecast as of July 1993.

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

Appendix table 26--World rice production and stocks: Selected countries or regions 1/

Country or region	Crop year 2/								
	1985/86	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93	1993/94 4/
Million metric tons									
<b>Production:</b>									
Bangladesh	22.6	23.1	23.1	23.3	26.8	26.8	27.4	27.0	27.0
Burma	11.5	11.8	11.4	12.5	13.5	13.7	12.8	13.4	14.7
China	168.6	172.2	173.9	169.1	180.1	189.3	183.8	186.2	177.1
India	95.7	90.6	85.3	105.7	110.4	111.4	110.5	108.0	111.0
Indonesia	39.0	39.0	41.5	42.3	44.7	45.2	44.7	47.3	48.2
Japan	14.6	14.6	13.3	12.4	12.9	13.1	12.0	13.2	13.5
South Korea	7.9	7.9	7.6	8.4	8.1	7.7	7.4	7.3	6.8
Pakistan	4.4	5.2	4.9	4.8	4.8	4.9	4.9	4.6	4.8
Thailand	20.3	18.9	18.4	21.3	20.2	17.2	20.4	19.8	20.0
Subtotal	384.6	383.3	379.4	399.8	421.5	429.3	423.9	426.8	423.1
Australia	0.7	0.6	0.8	0.8	0.8	0.8	1.1	1.1	1.0
Brazil	9.8	10.6	11.8	11.0	7.2	10.0	10.1	10.1	10.1
EC-12	2.0	1.9	1.9	2.0	2.1	2.4	2.3	2.2	2.1
All others	63.4	63.1	64.0	66.4	67.2	68.4	70.4	69.7	72.1
Total non-U.S.	460.5	459.5	457.9	480.0	498.8	510.9	507.8	509.9	508.4
United States	6.1	6.0	5.9	7.3	7.0	7.1	7.1	8.1	7.6
World total	466.6	465.5	463.8	487.4	505.8	518.0	514.9	518.0	516.0
<b>Ending stocks 3/:</b>									
Total foreign	52.5	49.2	44.5	46.9	53.6	58.7	54.0	51.3	44.0
United States	2.5	1.7	1.0	0.9	0.9	0.8	0.9	1.1	0.9
World total	55.0	50.9	45.5	47.8	54.5	59.5	54.9	52.4	44.9

1/ Production is rough basis, but ending stocks are milled basis. 2/ World rice harvest stretches over 6-8 months and varies widely across countries and hemispheres. 3/ 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. 4/ Projected as of July 1993.

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



Appendix table 27--World rice trade (milled basis): Exports and imports of selected countries or regions

Country or region	Calendar year							
	1987	1988	1989	1990	1991	1992	1993 1/	1994 2/
1,000 metric tons								
<b>Exports:</b>								
United States	2,444	2,241	2,967	2,420	2,197	2,107	2,400	2,500
Argentina	150	21	36	53	75	250	175	170
Australia	338	417	450	470	400	500	500	500
Burma	493	368	456	186	176	185	300	500
China	1,301	698	315	326	689	933	900	500
Taiwan	241	104	68	79	229	188	225	200
EC-12 3/	362	228	239	271	391	376	300	275
Egypt	105	108	32	85	159	209	200	200
Guyana	69	56	41	51	54	114	145	160
India	389	350	400	505	711	500	450	500
Indonesia	150	0	104	50	0	60	450	0
Pakistan	1,226	923	789	904	1,297	1,358	900	1,200
Thailand	4,344	4,791	6,036	3,938	3,998	4,776	4,000	4,200
Uruguay	204	273	260	288	260	300	350	400
Vietnam	153	97	1,383	1,670	1,048	1,950	1,900	2,000
Other	677	566	401	365	325	268	273	290
<b>World total</b>	<b>12,646</b>	<b>11,241</b>	<b>13,977</b>	<b>11,661</b>	<b>12,009</b>	<b>14,074</b>	<b>13,468</b>	<b>13,595</b>
<b>Imports:</b>								
Bangladesh	724	394	583	113	24	15	20	0
Brazil	85	110	147	493	776	450	350	350
Canada	85	113	111	154	185	173	180	190
China	429	421	1,042	57	67	100	100	50
Cuba	168	162	164	238	264	138	200	250
Eastern Europe	220	151	169	135	160	209	262	262
EC-12 3/	535	590	561	500	481	463	575	625
India	8	697	627	61	10	0	130	0
Indonesia	131	50	385	77	192	650	50	50
Iran	895	400	1,000	850	565	950	950	750
Iraq	515	547	448	388	252	434	500	550
Ivory Coast	445	212	305	303	417	270	320	350
North Korea	0	0	0	0	200	10	150	100
Kuwait	90	90	90	90	90	90	100	100
Madagascar	125	70	130	155	60	100	100	100
Malaysia	196	289	378	298	367	444	400	400
Mexico	1	1	189	148	173	385	350	400
Nigeria	642	344	164	224	296	440	200	350
Peru	115	19	237	233	340	325	220	300
Philippines	1	175	185	538	91	0	150	0
Saudi Arabia	510	510	525	547	533	625	550	600
Senegal	263	209	432	332	433	360	385	400
South Africa	268	242	292	295	360	375	385	400
Sri Lanka	108	184	338	139	208	330	250	300
Syria	90	125	74	101	123	48	140	150
Turkey	175	67	221	203	146	292	250	250
U.A. Emirates	289	224	333	317	248	376	250	250
Former USSR	598	498	600	400	400	800	825	825
Vietnam	344	175	50	0	0	0	0	0
Other	3,245	2,910	3,468	3,024	3,105	3,791	4,136	3,983
Unaccounted 4/	1,346	1,262	729	1,248	1,443	1,431	990	1,260
<b>World total</b>	<b>12,646</b>	<b>11,241</b>	<b>13,977</b>	<b>11,661</b>	<b>12,009</b>	<b>14,074</b>	<b>13,468</b>	<b>13,595</b>

1/ Forecast. 2/ Projected as of July 1993. 3/ EC-12 rice trade has been adjusted (July 1993) to exclude EC intra-trade for the years 1980 to the present. 4/ 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 28--U.S. share of world production, exports, and ending stocks of rice, 1960/61-1992/93

Year 1/	-----U.S. share of world-----		
	Production	Exports 2/	Ending stocks
	Percent		
1960/61	1.2	12.8	3.2
1961/62	1.2	16.5	2.0
1962/63	1.4	16.3	2.0
1963/64	1.4	17.0	1.5
1964/65	1.3	18.8	1.5
1965/66	1.4	17.1	1.5
1966/67	1.6	23.1	1.5
1967/68	1.6	25.6	1.1
1968/69	1.8	24.5	2.1
1969/70	1.5	21.2	2.0
1970/71	1.3	16.5	2.1
1971/72	1.3	22.4	1.3
1972/73	1.3	18.9	0.7
1973/74	1.3	22.2	0.9
1974/75	1.6	28.1	0.8
1975/76	1.7	24.2	3.1
1976/77	1.6	21.3	3.4
1977/78	1.2	23.6	2.0
1978/79	1.6	19.1	1.9
1979/80	1.7	24.8	1.6
1980/81	1.8	24.9	1.1
1981/82	2.1	22.8	3.6
1982/83	1.7	21.3	5.3
1983/84	1.0	18.5	3.1
1984/85	1.4	17.5	3.7
1985/86	1.3	20.4	4.5
1986/87	1.3	19.3	3.2
1987/88	1.3	19.9	2.2
1988/89	1.5	21.2	1.8
1989/90	1.4	20.8	1.6
1990/91	1.4	18.3	1.3
1991/92	1.4	15.0	1.6
1992/93 3/	1.6	17.8	2.2
1993/94 4/	1.4	18.4	2.1

1/ Based on aggregate of differing local marketing years except for exports which are on a calendar year. 2/ World trade has been adjusted (July 1993) to exclude EC intra-trade for the years 1980 to present. 3/ Estimated. 4/ Forecast.

Appendix table 29--Ratio of world trade and ending stocks to consumption; U.S. exports as share of foreign consumption

Year 1/	World trade	World ending	U.S. exports
	to world	stocks to world	to foreign
	consumption	consumption	consumption
	Percent		
1960/61	4.2	6.7	0.5
1961/62	4.3	5.7	0.7
1962/63	4.9	8.2	0.8
1963/64	4.7	9.8	0.8
1964/65	4.6	9.6	0.9
1965/66	4.6	10.4	0.8
1966/67	4.4	10.4	1.0
1967/68	3.8	11.2	1.0
1968/69	3.9	13.0	1.0
1969/70	4.1	13.1	0.9
1970/71	4.1	13.7	0.7
1971/72	4.0	13.1	0.9
1972/73	3.9	10.9	0.7
1973/74	3.4	12.8	0.8
1974/75	3.2	12.5	0.9
1975/76	3.6	16.7	0.9
1976/77	4.5	16.0	1.0
1977/78	3.9	18.0	0.9
1978/79	4.7	21.5	0.9
1979/80	4.9	20.5	1.1
1980/81	4.4	17.5	1.1
1981/82	3.9	15.5	0.9
1982/83	3.8	15.3	0.8
1983/84	3.8	15.5	0.7
1984/85	3.5	18.0	0.6
1985/86	3.7	17.3	0.8
1986/87	3.9	15.9	0.8
1987/88	3.5	14.2	0.7
1988/89	4.3	14.6	0.9
1989/90	3.5	16.2	0.7
1990/91	3.5	17.2	0.6
1991/92	4.0	15.6	0.6
1992/93 2/	3.8	14.8	0.7
1993/94 3/	3.8	12.7	0.7

1/ Based on aggregate of differing local marketing years except for exports which are on a calendar year.  
2/ Estimated. 3/ Forecast.

Appendix table 30--U.S. rice exports by type 1/

Crop year	Regular milled	Brown	Parboiled	Rough	Brokens	Total
	2/					
1,000 metric tons						
1977/78	1,478.8	244.9	502.5	46.4	43.2	2,315.8
1978/79	1,416.5	276.0	627.3	90.5	20.8	2,431.1
1979/80	1,537.5	475.3	598.4	54.5	40.1	2,705.8
1980/81	1,011.7	1,202.5	781.7	13.5	18.0	3,027.4
1981/82	976.8	502.5	1,000.9	188.9	12.7	2,681.8
1982/83	993.2	354.3	846.5	18.7	5.9	2,218.6
1983/84	972.3	334.2	821.8	105.7	37.6	2,271.6
1984/85	1,009.3	169.6	630.8	103.1	46.8	1,959.6
1985/86	950.3	272.0	523.8	53.4	80.1	1,879.6
1986/87	1,541.2	245.1	659.7	264.0	5.7	2,715.7
1987/88	1,279.7	178.0	642.9	37.3	152.9	2,290.8
1988/89	1,425.0	313.8	834.4	127.3	81.4	2,781.9
1989/90	1,165.5	311.4	943.9	51.3	65.3	2,537.4
1990/91	874.0	423.2	823.3	155.1	42.7	2,318.3
1991/92	754.3	314.4	776.5	203.9	74.4	2,123.5

1/ Categories have not been converted to the same basis. 2/ Total minus sum of other categories.

Source: U.S. Bureau of the Census.

Appendix table 31--U.S. rice exports by export program

Fiscal year	PL 480	Section 416	CCC credit programs 1/	CCC African relief exports	EEP 2/	Export programs 3/	Exports outside specified export programs	Total U.S. rice exports	Export programs as a share of total exports
									Percent
1,000 metric tons									
1975	747	0	48	0	0	795	1,419	2,217	36
1976	509	0	101	0	0	610	1,340	1,953	31
1977	691	0	15	0	0	705	1,614	2,317	30
1978	530	0	50	0	0	580	1,696	2,276	25
1979	486	0	42	0	0	528	1,868	2,396	22
1980	540	0	168	0	0	708	2,247	2,955	24
1981	360	0	452	0	0	812	2,360	3,172	26
1982	374	0	14	0	0	388	2,523	2,911	13
1983	475	0	328	0	0	803	1,473	2,276	35
1984	464	0	571	49	0	1,084	1,209	2,293	47
1985	577	0	359	4/ 180	0 4/	1,116	4/ 856	1,972	4/ 56
1986	313	0	477	0	23	813	1,569	2,382	34
1987	426	60	636	0	28	1,150	1,304	2,454	47
1988	321	29	443	0	120	913	1,220	2,173	42
1989	408	0	826	0	20	1,254	1,787	3,041	41
1990	350	0	663	0	0	1,013	1,484	2,497	41
1991	372	0	183	0	76	631	1,764	2,395	26
1992	381	0	220	0	358	919	1,360	2,279	40

1/ Quantities and values shown are based on reports supplied by the export trade and may not completely reflect exports made under these programs. 2/ Sales not shipments. 3/ Adjusted for estimated overlap between CCC export credit and EEP shipments. 4/ Estimated.

Sources: Agricultural Stabilization and Conservation Service, and Export Credits, Foreign Agricultural Service, USDA. Table provided by Commodity Trade Programs Section, ERS-CED, (202) 219-0821.

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