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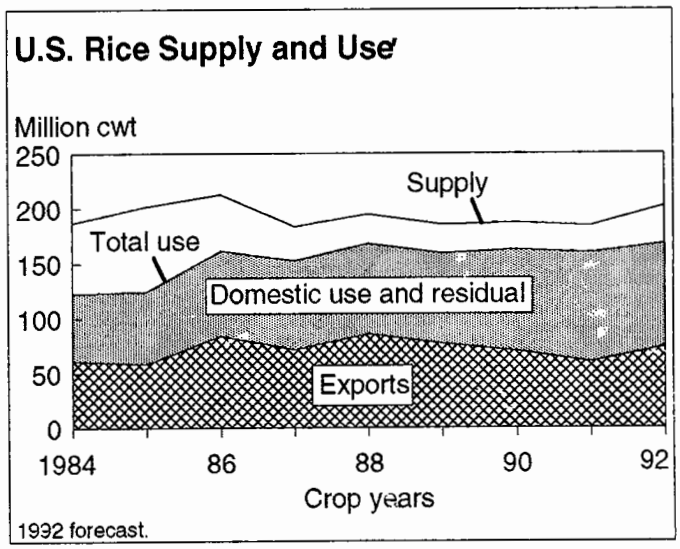
Rice

Situation and Outlook Yearbook



U.S. Supply and Exports Forecast To Rebound

Rice Situation and Outlook. Commodity Economics Division, Economic Research Service, U.S. Department of Agriculture, July 1992, RS-64.

Contents

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Rice Conversions
1 cwt = 100 pounds = 2.22 bushels = .0454 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. 1992 rice production is forecast to increase 7.5 percent from a year earlier to 166 million cwt. This would be the second largest U.S. rice crop in history, surpassing 1988's output of 160 million, but falling significantly under 1981's record 187 million cwt.

The forecast production gain over last year's output is caused by a projected rise in harvested acreage. Factors contributing to the rise in 1992 acreage include a 0 percent acreage reduction program (ARP), compared to the 5 percent ARP imposed in 1991; favorable weather and relatively high prices at planting time; and increased water availability in California.

Total 1992/93 U.S. rice supplies are projected up nearly 10 percent from a year ago to 202.7 million cwt. Nearly two-thirds of the expected increase in supply is attributed to the forecast rise in production, while a projected increase in beginning stocks accounts for one-third. Imports are projected up .5 million cwt, accounting for 2.7 percent of the forecast increase in supply.

The forecast boost in U.S. rice supplies is putting downward pressure on U.S. rice prices. Prices at the farm level are forecast to range between $6.25 and $7.25 per cwt in 1992/93, compared with an estimated range of $7.50 to $7.55 for the 1991/92 marketing year.

With 1992/93 U.S. supplies expected to be higher and prices lower, U.S. exports are projected up 21 percent from 1991/92. Lower prices are expected to improve the competiveness of U.S. rice in the high quality markets in Europe, the Middle East, and Latin America. Improved supply and lower prices are also likely to lead to greater rice availability for the P.L. 480 Program, potentially boosting exports to Latin America and African countries.

U.S. domestic use continues to grow. Food use for 1992/93 is forecast up 3.8 percent based on the growth rate projected from results of recent Economic Research Service distribution surveys and reports by the Rice Millers Association. Brewer's use and seed use are currently projected to remain the same as a year ago.

With growth in supplies forecast to exceed growth in use, 1992/93 carryout stocks are forecast to increase to 34.4 million cwt, 12 percent above 1991/92. The stocks-to-use ratio for 1992/93 is expected to be 20.4 percent, about the same as in the previous year but 5 percentage points above 1990/91.

Although stocks are forecast larger, they are not considered to be burdensome. In the early to mid-1980's, when government stocks were large, the stocks-to-use ratio averaged an excessive 45 percent, but between 1987/88 and 1990/91 the ratio average plummeted to a tight 17 percent. In 1990/91, the ratio dipped even further to 15 percent, the lowest since 1974/75.

Foreign rice production in 1992/93 is forecast up 1 percent from 1991/92. Area is projected up slightly, due to increases in India and Indonesia, and yields are projected to rise marginally.

Foreign consumption is also forecast up 1 percent and is expected to exceed production. As a result, ending stocks are projected to be drawn down and the stocks-to-use ratio to decline from 15 percent to 14.

Foreign exports are projected down marginally in calendar 1993. A drop in imports by Indonesia is expected to be offset somewhat by increases by Iraq.

U.S. Outlook for 1992/93

U.S. Production Forecast Up

U.S. 1992 rice production is forecast to increase 7.5 percent from a year earlier to 166 million cwt. This would be the second largest U.S. rice crop in history, surpassing 1988's output of 160 million cwt, but falling significantly under 1981's record 187 million cwt. Long grain production is expected up 7.3 percent and medium grain up 7.9 percent.

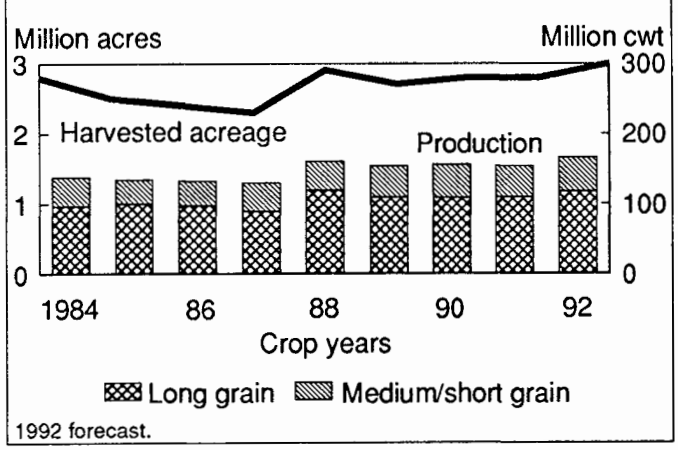
This forecast gain over last year's output is caused by a projected rise in harvested acreage. Factors contributing to the rise in 1992 acreage include a 0 percent acreage reduction program (ARP), compared to the 5 percent ARP imposed in 1991; favorable weather and relatively high prices at planting time; and increased water availability in California.

Acreage Increases In All States

USDA's June acreage report indicates that U.S. rice producers plan to harvest 2.97 million acres in 1992, 218,000 more than in 1991. Acreage increases are expected in all States. Long grain harvested acreage is forecast up 9.4 percent and medium grain up 3.7 percent.

Arkansas' rice acreage continues to dominate the U.S. total, accounting for 44 percent of projected 1992 harvested acreage for all rice and nearly 53 percent for long grain rice. While Arkansas' long grain acreage is forecast to increase by 59,000 acres in 1992, Louisiana's acreage is projected to rise by 105,000. This would boost Louisiana's share to 16 percent in 1992, compared to 12 percent in 1991, and 15 percent in 1990. Louisiana's long grain acreage was reduced last year because of weather-related problems.

Figure 1
U.S. Production Forecast To Increase



1992 forecast.

Medium grain rice is grown principally in California. Spurred by improved water supplies, California's medium grain acreage is forecast to expand to 46 percent of the U.S. total, up from 42 percent a year ago. Louisiana's medium grain acreage is projected to decrease and Arkansas' is expected to remain nearly the same as in 1991.

Seeding of Crop Progressed Well

Favorable weather during the planting season in most areas allowed seeding of the 1992 rice crop to proceed ahead of schedule and be completed by June.

Some plantings in Texas, however, were delayed because of heavy rain. In addition, cold wet weather during May slowed crop development along Texas' Upper Coast. This could reduce the potential for a good ratoon crop and also reduce yields on the main crop. There are also reports of problems with excessive weeds and uneven stands.

Blast disease has been found in many areas of Texas as well as parts of Louisiana. Blast is very difficult to control and can drastically reduce yields. In addition to blast, water weevils have been causing severe damage in southwestern Louisiana.

The Arkansas rice crop is reported to be doing well, but abnormally cold and dry weather after the crop was planted, followed by heavy rain, resulted in higher than average reports of seedling diseases, weed problems, and uneven stands. Uneven growth of the rice crop makes application of mid-season chemicals difficult.

Despite these problems, the overall condition of the rice crop appears favorable. USDA's weather bulletin rated the 1992 rice crop, as of July 19, to be 6 percent in excellent condition, 68 percent good, and 26 percent fair. The results of USDA's first survey-based yield forecast for the 1992 crop will be available in August.

Supplies Forecast Above Last Year

Total 1992/93 U.S. rice supplies are projected up nearly 10 percent from a year ago to 202.7 million cwt. This would be the highest level since 1986/87 when record stocks contributed significantly to record supply. Between 1986/87 and 1989/90, stocks fell precipitously as use soared ahead of production. In 1992/93, nearly two-thirds of the expected increase is attributed to the forecast rise in production, while the projected increase in beginning stocks accounts for one-third. Imports are projected up .5 million cwt, accounting for 2.7 percent of the forecast increase in supply.

Domestic Use Continues To Increase

Food use for 1992/93 is forecast up 3.8 percent based on the growth rate projected from results of recent Economic Re-

search Service distribution surveys and reports by the Rice Millers Association. Brewers' use and seed use are currently projected to remain the same as a year ago.

Exports Projected To Rebound

U.S. exports in 1992/93 are projected at 74 million cwt, up 21 percent from forecast 1991/92. Increased supplies and lower prices are expected to improve the competitiveness of U.S. rice in the high quality markets, particularly in Europe, the Middle East, and Latin America. In most years, U.S. exports move countercyclical to U.S. prices (see figure 2). Improved supply and lower prices are also likely to lead to greater rice availability for the P.L. 480 Program, potentially boosting exports to Latin America and African countries.

Stocks Expected To Grow

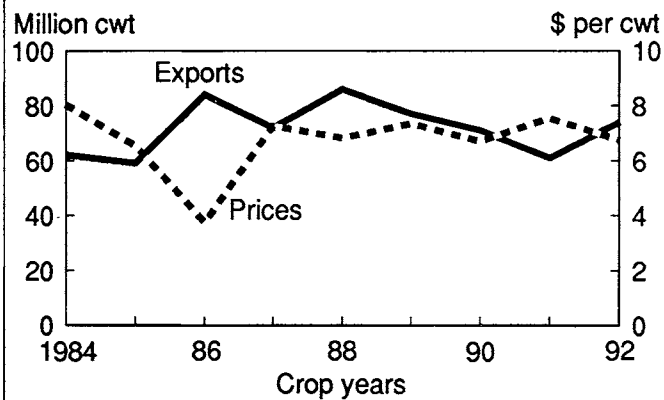
With growth in supplies forecast to exceed growth in use, carryout stocks for 1992/93 are forecast to increase to 34.4 million cwt, 12 percent above 1991/92. The stocks-to-use ratio for 1992/93 is expected to be 20.4 percent, about the same as in the previous year, but 5 percentage points above 1990/91.

Although stocks are forecast larger, they are not considered to be burdensome. In the early-to-mid-1980's, when government stocks were large, the stocks-to-use ratio averaged an excessive 45 percent, but between 1987/88 and 1990/91 the ratio average plummeted to a tight 17 percent. In 1990/91, the ratio dipped even further to 15 percent, the lowest since 1974/75.

U.S. Prices Forecast Lower Than a Year Ago

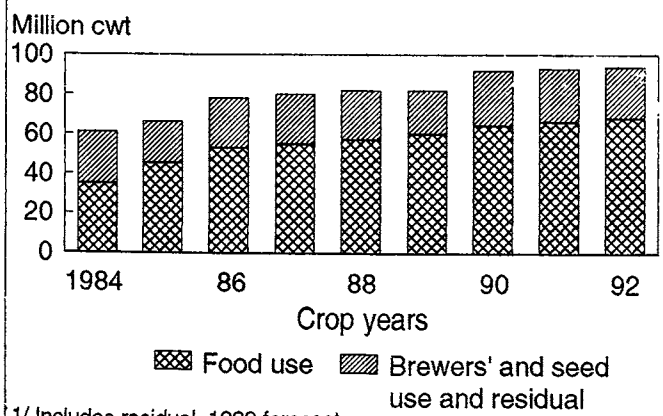
Rice prices at the farm level are forecast to range between $6.25 and $7.25 per cwt in 1992/93, compared with an estimated $7.50 to $7.55 for the 1991/92 marketing year. The forecast boost in U.S. rice supplies is putting downward pressure on U.S. prices.

Figure 2
U.S. Exports and Rough Rice Prices



1992 forecast (midpoint of range).

Figure 3
U.S. Domestic Rice Use[1]



1/ Includes residual. 1992 forecast.

1992/93 International Outlook

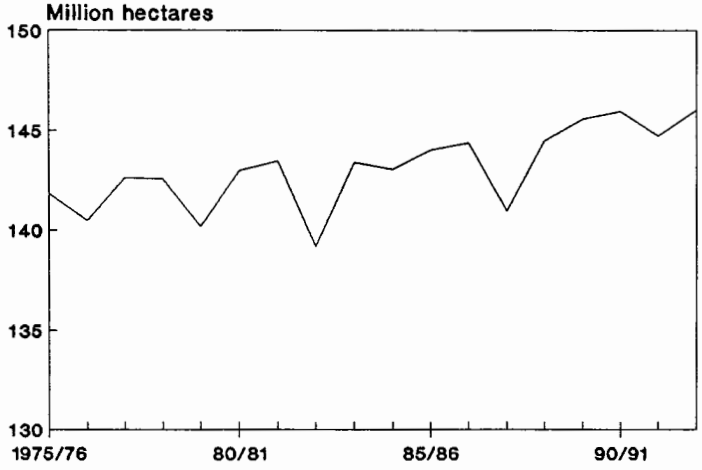
World rice production in 1992/93 is projected at 351 million tons, up slightly from 1991/92. Foreign area is projected up slightly due to increases in India and Indonesia, two of the world's largest producers. However, foreign yields are projected to increase only marginally.

Global consumption is projected at 354 million tons, up slightly from 1991/92 and exceeding global production for the second consecutive year. As a result, ending stocks are projected to be drawn down marginally and the stocks-to-use ratio is projected to decline from 15 percent in 1991/92 to 14 percent in 1992/93.

World rice trade in calendar 1993 is projected at 13.3 million tons, down only marginally from forecast 1992. A drop in imports by Indonesia is expected to be offset somewhat by increases by Iraq and some smaller importing countries. Given expected stagnant global trade and abundant Asian exportable supplies, world prices are likely to remain relatively low.

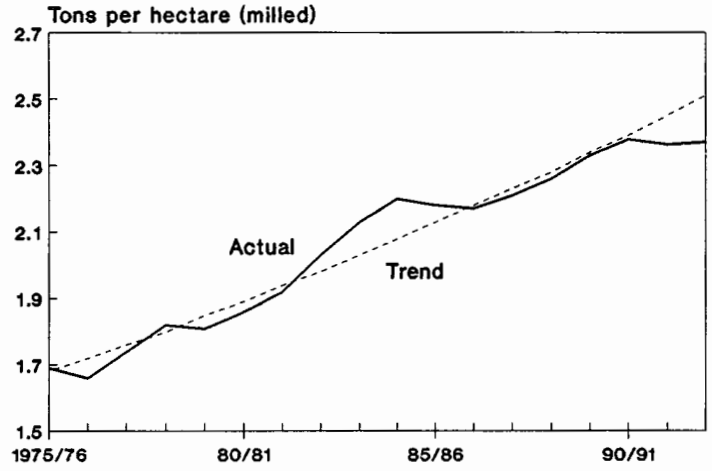
Therefore, U.S. exports are likely to face continued strong competition in the world market. However, with increased U.S. supplies and lower prices, U.S. exports and market share are projected to increase in calendar 1993. Since the GSM-102 credit guarantee program will likely continue to play a much smaller role in promoting U.S. rice exports than it did prior to 1990 when Iraq was a major customer, the competitiveness of commercial exports will be the major factor in determining whether U.S. market share increases in calendar 1993.

Figure 4
Foreign Rice Area



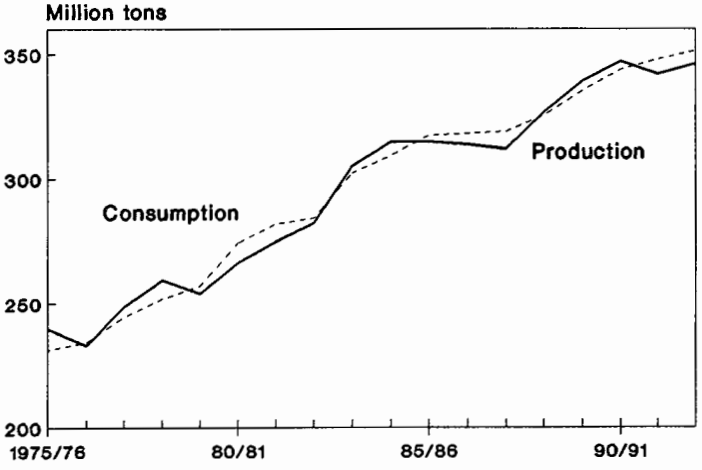
1991/92 forecast, 1992/93 projected.

Figure 5
Foreign Rice Yields



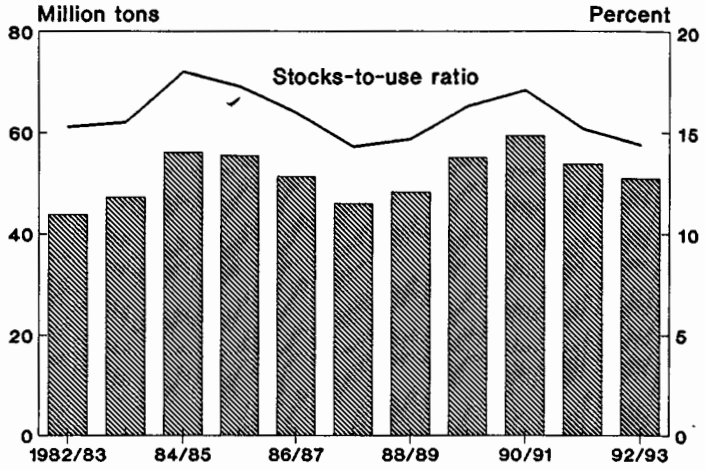
1991/92 forecast, 1992/93 projected.

Figure 6
Foreign Rice Production and Consumption



1991/92 forecast, 1992/93 projected.

Figure 7
World Stocks and Stocks-to-Use Ratio



1991/92 forecast. 1992/93 projection.

Asian Production Projected Up From 1991/92's Reduced Crop

While production is projected to rise in the major exporting countries, policy changes and some weather problems might slow growth among the major producers (China, India, and Indonesia). It is still very early to project actual production, consumption, and trade for 1992/93. One of the issues creating uncertainty is the lateness of the South Asian monsoon rains which usually continue until the end of September. In addition, several of the major Southeast Asian rice crops will not be harvested until the end of 1992. Also, major policy changes in China are adding to production uncertainties.

Policy changes in China are leading to market liberalization of the grain sector. Rising incomes and reduced consumer subsidies for rice have resulted in increased demand for high quality rice. Previously, the goal of government grain policy was to encourage farmers to produce the maximum amount of grain, regardless of quality. The government provided both production and consumption subsidies. When surpluses developed and world prices were favorable, the government exported rice, often at subsidized prices. Rice imports were tightly controlled by the central government.

Grain purchasing organizations are receiving fewer subsidies. Now, they must be responsive to market conditions, paying farmers market prices for grain and purchasing rice that consumers will buy. Changes in the rice marketing sector are likely to be gradual as farmers, millers, and consumers adapt to the new marketing environment. However, in expectation of lower prices, farmers are not expected to increase acreage in 1992/93 from the 1991/92 reduced level. As a result, production is projected at 185 million tons, up only marginally from the flood-damaged 1991/92 crop.

China's imports in calendar 1993 are projected to match 1992 at 100,000 tons. Stocks of low quality rice remain unsold and the demand for imported high quality rice appears to be rising. The central government is allowing provincial authorities to use their own foreign exchange reserves for imports, and imports into the relatively prosperous southern cities are expected to rise. Imports are expected to come from Thailand and Vietnam. In addition, the borders along Burma, Laos, and Cambodia are becoming increasingly porous and smuggling is expected to increase. However, rice smuggled into China is not accounted for in USDA statistics.

China's exports are projected to decline to 700,000 tons, down 7 percent from forecast calendar 1992. As part of the policy change, China is unlikely to subsidize exports. Rice will only be exported when world prices are high enough to make sales profitable, for food aid, or for foreign policy reasons. In the past, China sold its higher quality rice in the world market when prices were high, reserving lower quality rice for domestic consumption. Now, high quality rice commands a premium in the domestic market and less of it will be exported.

Monsoon rains began in India about 1 week later than normal and continues to progress more slowly than normal. Beneficial rain in early June assisted rice planting in the southern and eastern rainfed areas. Monsoon rains and mild temperatures in northern India and Pakistan have also aided the irrigated crops. However, central India has been much drier than normal. The erratic nature of the monsoon has raised some concern about the crop. India's production is projected to rise 3 percent to 73 million tons, assuming a normal monsoon season for the rest of the year,

India's government grain stocks remain low, particularly for wheat. While rice stocks remain generally adequate, concerns about the monsoon and pace and volume of government grain procurement have led to government statements regarding the necessity of future rice imports. The timing of such imports remains uncertain. Reports indicate that India might have already purchased some rice from Vietnam.

India's exports of basmati rice and high quality long-grain rice are expected to continue. Calendar 1993 exports are projected at 450,000 tons, 13 percent less than 1992.

Indonesia's rice production is projected up only marginally from 1991/92. There were concerns regarding the main season crop that is beginning to be harvested. But rains appear to have been near normal throughout the growing season, although there were some dry conditions reported in April. Indonesia has purchased 600,000 tons of rice for import in calendar 1992 as a result of reduced 1991/92 production and concerns about the 1992/93 crop. Imports are projected to decline in 1993, but the volume will likely depend on production prospects for Indonesia's smaller dry-season rice crop.

The Philippines' production is projected at 6.4 million tons, up 7 percent from 1991/92. Area and yield are both expected to rise from 1991/92 when dry conditions led to declines. Assuming normal weather, production prospects are expected up from 1991/92. Consumption is expected to rise only moderately and, similar to forecast calendar 1992, no imports are projected in 1993.

Bangladesh is projected to produce 18.6 million tons in 1992/93, matching the record rice crop in 1991/92. While no area increase is projected, some shifts from the Aus to Boro crops are expected. Only 15,000 tons of rice imports are projected in 1993, down from forecast imports of 50,000 tons in 1992.

Area is projected down 6 percent in Sri Lanka because of continued dry conditions. Production is projected at 1.5 million tons. Ending stocks are projected to be drawn down to their lowest since 1987 and imports are expected to match 1992 at 220,000 tons.

Dry weather in 1991/92 reduced Malaysian production. Assuming normal weather in 1992/93, area and yield should both increase, leading to a projected 1.2 million tons of production in 1992/93, up 9 percent from 1991/92. Imports are projected at 400,000 tons, up 5 percent from forecast 1992.

In Japan, rice production is projected to expand 13 percent from 1991/92 to 9.8 million tons. In 1991/92, adverse weather led to the lowest production in nearly 40 years. Stocks were drawn down and the government relaxed its rice land diversion program to allow for larger area and increased production in 1992/93.

South Korea's production is projected to decline slightly from 1991/92 to 7.3 million tons in 1992/93. Area has been gradually declining since 1987/88 because of government efforts to reduce surpluses of long grain rice. Yields are projected to fall because of dry weather and the shift to lower yielding, higher quality varieties. South Korea is expected to continue exporting small quantities of rice in calendar 1993. Both Japan and South Korea maintain bans on rice imports (with some minor exceptions) and this is not expected to change in calendar 1993 unless a GATT agreement is signed and implemented by the end of next year.

Exports to the Middle East To Expand

Projected increased imports by Iraq are expected to boost regional imports. However, Iraq's grain imports have been hampered by a lack of foreign exchange. Shipment delays have occurred and it remains unclear how much rice Iraq will actually be able to import in the coming year.

Iran's rice production is projected at 1.3 million tons, down 6 percent from 1991/92. Growing consumption needs will likely lead to 800,000 tons of imports in calendar 1993, matching 1992. Saudi Arabia's imports are projected to remain relatively flat at 525,000 tons. Turkey's imports are also projected to match 1991/92 at 250,000 tons.

Latin American Imports To Rise

Brazil's 1992/93 production is forecast at 7.1 million tons, 3 percent below 1991/92. Brazil's 1992/93 crop will not be planted before August and the government's credit program for summer crops has not been announced. Assuming that the government continues current austerity measures, rice farmers are likely to receive production support similar to that received for the 1991/92 crop. However, in 1991/92 the government provided additional credit to agricultural producers above the normal amount initially announced in 1991. It is not expected that producers will receive this additional credit in 1992. Area is expected to equal 1991/92, but, assuming normal weather and some reduced input use, yields are expected to be down from the 1991/92 record.

The Brazilian economy is forecast to show some signs of recovery in 1993. Incomes are expected to rise and rice consumption is therefore projected up. Imports are projected at 350,000, matching calendar 1992.

Peru's rice production is projected at 400,000 tons, down 28 percent from 1991/92. Severe drought associated with El Nino weather conditions has sharply reduced both area and yields. Calendar 1993 imports are projected at 450,000 tons, up 13 percent from the forecast 1992 record.

Mexico's production is projected at 200,000 tons, only slightly higher than 1991/92. However, with consumption continuing to rise and stocks relatively low, calendar 1993 imports are projected to match 1992 at 250,000 tons.

Production in Europe To Decline; Africa's Imports To Fall

Production in the European Community (EC) is projected down 2 percent because of reduced area and yields in Spain and Portugal. Drought has reduced yields on the Iberian Peninsula, and reduced support for long grain production has led to area declines (see special article). However, production is projected up in Italy, the EC's largest rice producer. Area is projected to nearly equal 1991/92, but yields are projected above the 1991/92 weather-affected crop. EC exports in calendar 1993 are projected at 900,000 tons, down 13 percent. Imports are also projected down slightly.

In Eastern Europe, production, although small, is projected at 72,000 tons, down 12 percent from 1991/92 and less than half the average of the 1980's. Costs have risen and prices remain low in several of the producing countries where markets were liberalized. However, imports in calendar 1993 are projected to only match 1992 at 300,000 tons.

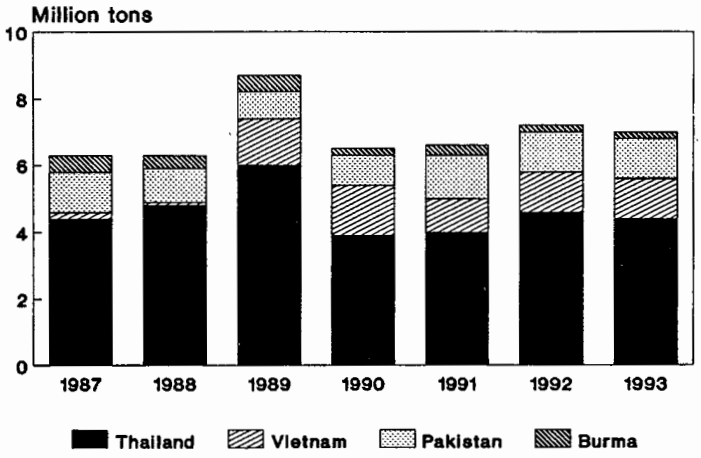
Production is projected up in the former Soviet Union, but rising consumption and the credit being made available is expected to lead to a continued rise in imports. Imports are projected to reach 825,000 tons in calendar 1993, up 3 percent from 1992.

Rice production in Sub-Saharan Africa is projected to nearly equal 1991/92. Imports in calendar 1993 are projected to fall 3 percent from 1992 to 2.7 million tons. The largest decline is projected in Nigeria where imports are forecast down 26 percent because of a projected larger crop.

Competitors' Exports Projected Down in 1993

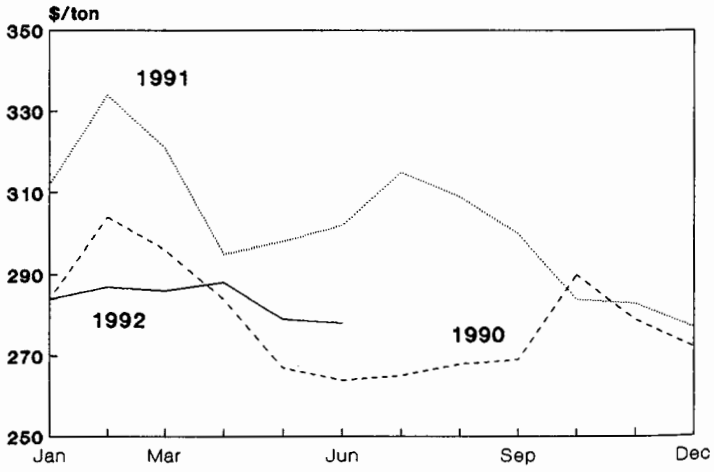
Thailand's 1992/93 main season crop is just now being planted and will not be harvested until the end of 1992.

Figure 8
Asian Rice Exports



1992 forecast; 1993 projected.

Figure 9
Thai Export Prices



F.o.b. Bangkok 100 percent B, average monthly price quotes.

Consequently, projections this early in the year are highly tentative. Rice prices were relatively high at this time a year ago. Since then, prices have declined, and despite continuing government support, farmers are likely to reduce area from the 1991/92 record. Assuming normal weather, yields are projected slightly higher, but production is projected to fall slightly to 13.2 million tons. Exports are projected to decline 4 percent to 4.4 million tons as global imports stagnate and competition for markets increases.

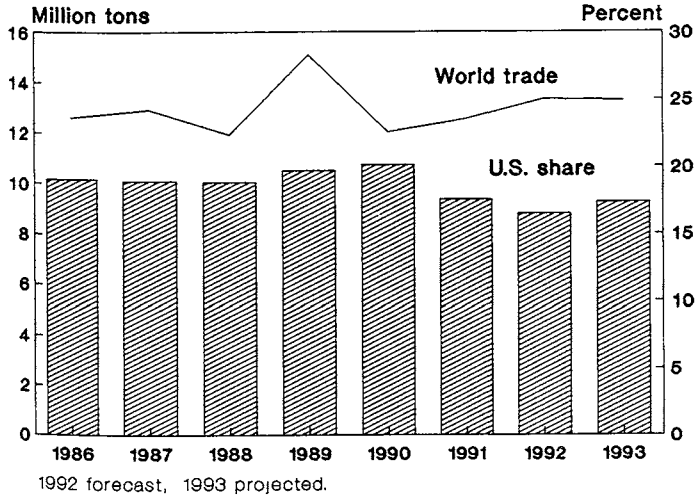
Vietnam's 1992/93 production is projected to decline to 12.8 million tons, down 5 percent from the 1991/92 record, but still the second largest crop on record. Area is projected down slightly and, assuming normal weather, yields are expected to drop from the 1991/92 record. Exports in calendar 1993 are projected at 1.2 million tons, matching forecast 1992.

In Burma, area is projected up slightly, but yields are projected down. Reports indicate that monsoon rains are lighter than average. Production in 1992/93 is projected at 7.8 million tons, up 2 percent from 1991/92. Exports are projected to remain weak at 200,000 tons, matching calendar 1992.

Pakistan's production is projected up marginally. Area is expected to match 1991/92 and yields are projected up slightly higher. Pakistan will continue to compete strongly with India for basmati markets and is projected to match calendar 1992 exports at 1.2 million tons.

Like other southern hemisphere producers, Australia's rice crop will not be planted until later in 1992. Area is projected up marginally. Yields are also projected to rise from the relatively low drought-reduced 1991/92 yields. Production is projected at 623,000 tons, up 9 percent from 1991/92. Exports are projected to rise to 500,000 tons, up 11 percent from forecast calendar 1992.

Figure 10
World Rice Trade and U.S. Share



1992 forecast, 1993 projected.

U.S. Market Share To Rise

U. S. exports are projected to rise in calendar 1993 to 2.3 million tons, up 5 percent from 1992. U.S. supplies are expected to be more plentiful in calendar 1993 than in 1992. Therefore, if U.S. prices are competitive, U.S. market share is likely to rise from a forecast 16.5 percent in 1992 to a projected 17.3 percent in 1993.

Government program allocations for fiscal 1993, including P.L. 480 and GSM credit guarantees have not yet been announced. With larger supplies and lower prices, it is possible that P.L. 480 shipments could rise. However, like fiscal 1992, it is likely that exports under GSM credit guarantees will play a smaller role than in the past when the most of the credit was used by Iraq.

1991/92 Rice Situation

World rice production in 1991/92 is forecast at 347 million tons, down slightly from 1990/91. Weather related declines in China and India account for much of the reduction. Dry weather in Indonesia and the Philippines also contributed.

World trade is forecast to expand 6 percent to 13.3 million tons in calendar 1992. Gains in Indonesia, the former USSR, and Iran account for most of the increase. Indonesia began importing rice in late 1991 and is forecast to import 600,000 tons in 1992 in response to a reduced 1991/92 harvest and concerns about the 1992/93 crop. Credit from Thailand and the United States is allowing the former USSR to double imports to 800,000 tons. Iran's imports are also forecast at 800,000, up 41 percent as consumption rises and supplies remain low.

Production in the Asian exporting countries increased sharply in 1991/92. Thailand's area expanded in response to higher prices after the poor 1990/91 harvest. Favorable weather during the main wet season and a large dry season crop (despite very dry conditions and low reservoir levels) is estimated to have increased production 19 percent from the pest-damaged 1990/91 crop. Vietnam is expected to harvest a record crop due to especially favorable growing conditions for the spring crop now being harvested.

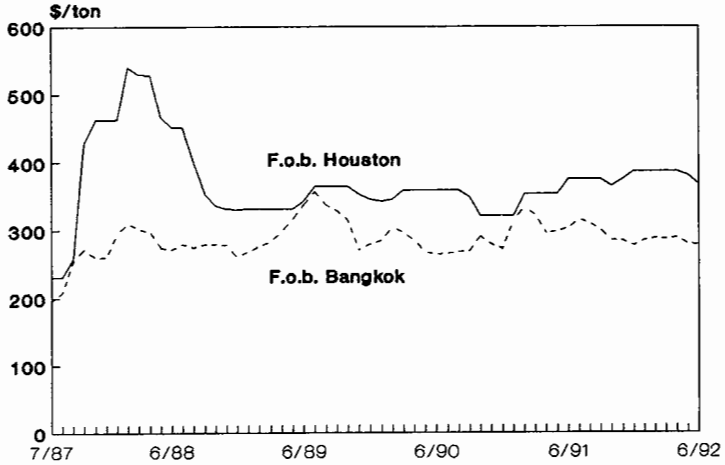
The large spring crop in Vietnam and bumper dry season crop in Thailand have contributed to lower farm prices in both countries, compared to a year ago. In addition to traditional support programs that encourage farmers to store rice and provide assistance to exporters, the Thai government has recently intervened in the market to buy rice for government-to-government exports.

U.S. exports have been sluggish in the first half of the calendar year. January through June exports are estimated at 1 million tons (based on the Census and the Export Sales Reports), 8 percent below a year ago. Exports are expected to increase in the last half of the year as supplies increase after harvest and prices become more competitive. More competitive prices are likely to lead to increased exports to the EC, Mexico, and several other commercial markets. However, U.S. market share in 1992 is forecast to decline to 16.5 percent from 17.6 in 1991.

The Export Enhancement Program (EEP) for rice for the 1991/92 marketing year totaled 318,440 tons as of July 16. Bonuses averaged about $65 per ton. The largest purchaser of rice under EEP in 1991/92 was Turkey (about 200,000 tons, over 60 percent of all EEP rice sales). Other active EEP purchasers have been Eastern European countries, the former Soviet Republics, Israel, and Jordan. EEP initiatives for rice were offered for the first time to Israel on May 18 (15,000 tons) and to Algeria on June 3 (40,000 tons).

As of July 2, 1992, GSM-102 credit guarantee allocations for rice were $93.2 million. Of this, $53.3 million were approved. Credit guarantee approvals give an indication of sales activity under the program. About 15 percent of the approvals were for sales to the former Soviet Union. On July 2, $3 million of guaranteed credit was released to the Ukraine for rice. This amount is in addition to the $7.99 million previously allocated to the former Soviet Union for rice since October 1991. Mexico, Senegal, and Algeria were also major recipients of the guaranteed credit.

Figure 11
U.S. and Thai Rice Export Prices



F o b Bangkok, Thailand, 100% B grade long grain price quotas.
F o b Houston, U.S No. 2, 4% broken, long grain price quotes.

As of July 21, fiscal 1992 P.L. 480 Title I rice allocations reached 85,300 tons of rice, valued at $26 million, compared with 13,000 tons at the same time a year ago. Primary recipients are Congo, Cote D'Ivoire, Jamaica, and Sierra Leone. In addition, as of June 1, about 186,000 tons of rice had been allocated under Title II and 29,000 tons allocated under Title III.

U.S. Exports Down In Marketing Year 1991/92

U.S. exports in 1991/92 (August/July) are forecast at 61 million cwt, down 14 percent from 1990/91 and the lowest since 1985/86. That year, importers delayed purchases of U.S. rice until the marketing loan program was implemented late in the season. U.S. prices have remained well above those of Asian competitors through much of the marketing year. In addition, several countries, especially Brazil, which were large purchasers in 1990/91, reduced overall imports because of larger domestic production.

Countries, such as Indonesia, Iraq, and Iran which increased rice imports in 1991/92, did not choose to buy rice from the United States for political reasons (Iraq and Iran) and for quality and price reasons (Indonesia).

U.S. exports are expected to decline in 1991/92 from 1990/91 in all major markets. However, sales to the former Soviet Union and Eastern Europe rose as credit and the EEP gave the U.S. a competitive advantage over other exporters. While overall sales to Latin America were down because of a decline in exports to Brazil, increases occurred in Costa Rica, Haiti, Honduras, Mexico, and Peru. A small increase in sales to South Africa is also expected.

Developments in the Spanish Rice Market Since Joining the European Commununity: Implications for the U.S. Rice Industry

A. Casimiro Herruzo and Parveen Setia [1]

Abstract: Accession of Spain to the European Community (EC) in 1986 has been favorable for Spanish rice cultivation. The increase in prices to the higher EC level and trade liberalization with EC member countries expanded Spanish rice acreage beyond the river deltas and estuaries. Producer support was introduced to encourage production of indica rice instead of japonica. As a result, rice acreage increased from 74,500 hectares in 1985 to 93,500 hectares in 1991. The increased domestic production and increased trade between EC members continued to lower U.S. rice exports to Spain.

Keywords: Rice, trade, European Community, Spain.

Rice was first introduced in Spain by the Arabs during the 9th century A.D. Since then, rice cultivation has been confined to a limited number of rivers and estuarine areas that run into the Mediterranean Sea. Valencia has been the leading rice producing region (figure A-1). In the 1860's, rice was introduced in Tarragona in the Ebro River Delta and in the 1930's rice cultivation spread to non-Mediterranean regions (2). Since the 1970's, Seville has been the leading rice-producing region in Spain, although in recent years rice cultivation has increased substantially in Extremadura and other interior areas (table A-1).

Spain's accession to the EC in 1986 strongly influenced its rice production and trade. Rice acreage expanded substantially in response to suspension of acreage restrictions and increased support for indica rice. In addition, long grain indica rice has been gradually replacing the traditional medium grain japonica rice. Spain, which had been a traditional exporter of japonica rice, now exports mostly long-grain indica rice primarily to the EC. Rice imports have also increased substantially, mainly from other EC countries.

Farm Structure

The majority of rice farms in Spain are very small and often include several scattered plots. In the two Mediterranean regions, Valencia and Tarragona, the average farm size is 2 and 4 hectares, respectively. In the other two major rice producing areas, farm sizes are larger. The estimated average size of rice farms is 7 hectares in Extremadura and 18 hectares in Seville.

Variation among regions is also found in farmer profiles. Most rice growers are over 55 years old. Tarragona and Valencia have the oldest population of rice producers, who are usually part-time. However, in Tarragona, a large proportion of rice farmers derive the major portion of their income from employment in the industry and service sectors, while in Valencia the opposite is true, i.e., rice growing is usually the

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Table A-1--Rice acreage by region in Spain, selected years

Year	Tarragona	Valencia	Seville	Extremadura	Others	Total
			1,000 hectares			
1935 1/	13.7	29.6	0.3	0.0	4.2	47.8
1940	14.6	27.6	2.3	0.0	3.6	48.1
1950	16.8	27.2	6.1	0.3	8.8	59.2
1960	17.6	25.5	14.5	0.5	7.6	66.9
1970	13.1	16.9	22.0	10.2	2.3	64.7
1980	16.6	15.8	27.3	5.9	2.6	68.4
1985	18.5	16.1	30.0	5.0	4.9	74.5
1990	18.6	15.6	34.0	14.0	6.8	89.0
1991	20.0	15.7	34.5	15.6	7.6	93.5

1/ Average 1931-1935.

Source: Anuario de Estadistica Agraria, Ministerio de Agricultura Pesca y Alimentacion, 1986. Years 1935 to 1985.

Boletin Mensual de Estadistica, Ministerio de Agricultura Pesca y Alimentacion, 1991. Years 1990 and 1991.

main source of income. In Seville, part-time farming is generally limited to the smallest farms. This region has the largest number of corporate farms. On the other hand, small full-time farmers are predominant in Extremadura. The land tenure system also varies by region, with land under lease the most common arrangement in Tarragona and Valencia.

Resource Conditions

In Spain, rice is cultivated on both wet and dry land conditions. Rice wet lands are concentrated in Seville, Tarragona, and Valencia which represent about 75 percent of total rice acreage.

In Extremadura and Seville regions, heavy clay soils and low permeability make rice the only profitable crop. National parks and sites of special ecological importance are generally located near wet lands. This has two negative consequences for rice cultivation; more expensive agrochemical applications as a result of special pesticide regulations and occasional crop damage by waterfowl. Dry rice lands are found in Extremadura and other interior regions. These are new irrigated areas where rice was introduced as a means of land reclamation . [2/] In these two regions, soils are suitable for a great variety of crops, and growing rice needs only some compaction of soil in order to minimize permeability.

Most of the water requirements for rice are supplied by flood irrigation. The supply is scarce in Seville and Extremadura, so water restrictions have to be implemented in low rainfall years. These restrictions were especially severe in 1983 when farmers in Seville were unable to plant any rice and again in 1989 when only one-third of the normal area was sown. Now, the current drought conditions are expected to have an adverse impact on the 1992 rice crop in Spain. Moreover, excessively salty water, due to the invasion of sea water in Tarragona and Valencia, often injures the rice plants, thus reducing yields.

Government Intervention

The new institutional environment emerging from Spain's accession to the EC in 1986 has been favorable to rice cultivation in the country. Historical acreage restrictions were suspended, and producer support was introduced for indica rice. Prior to 1986, rice planting was dependent on administrative concessions, which generally restricted rice cultivation to river deltas and estuaries. Now, rice can be cultivated throughout Spain except in areas under special environmental protection.

Moreover, in addition to acreage changes, the level of prices rose to the higher EC level and trade with other EC members was liberalized. The application of the EC Common Agricultural Policy (CAP) to the Spanish rice sector has resulted in increased CAP intervention prices (figure A-2). Until 1985, the Spanish system had two separate prices for indica and japonica rices. However, after 1985 one price prevailed because the EC intervention system imposes the same price for indica and japonica. Between 1985 and 1986, the intervention price increased 11.5 percent for japonica and decreased 8 percent for indica.

2/ In Extremedura large-scale irrigation was begun in the 1950's but important projects have been implemented in the 1980's.

Figure A-1
Spain's Main Rice Producing Areas

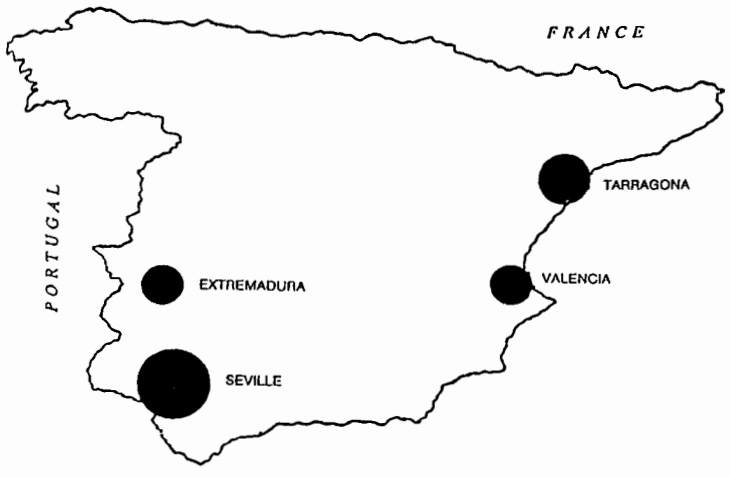
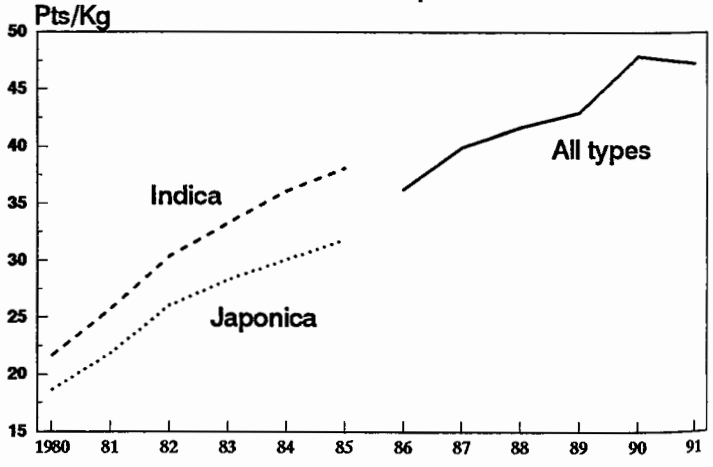


Figure A-2
Rice Intervention Price in Spain



Source: La Agricultura y la Pesca Espanolas, Ministerio de Agricultura Pesca y Alimentacion (1981-85).

La Aplicacion de la P.A.C. en Espana, Ministerio de Agricultura Pesca y Alimentacion (Various issues).

To encourage production of indica rice, a per hectare special subsidy was introduced in 1987. In 1987, the subsidy was about 56,000 pesetas per hectare,[3/] which is equivalent to approximately US $236 per acre .[4/] Finally, membership in the EC has opened up a large potential market to rice from Spain while maintaining former levels of protection from foreign competition. Prior to 1986, rice imports and exports were controlled by the government.

Impact of Joining the EC

Production

The integration of Spain into the EC has strongly affected rice production, consumption, and trade. Nationwide, rice acreage expanded about 25 percent, from 74,500 hectares in 1985 to 93,500 hectares in 1991 (figure A-1). As a result, estimated production in 1991 reached a peak of approximately 586,000 tons (figure A-3). Greater market demand and government incentives have induced a steady increase in long-grain indica acreage, replacing short- and medium-grain japonica acreage. In 1991/92, long grain rice accounted for nearly 50 percent of the nation's rice production.

In addition, average market prices have significantly increased from about 26 pesetas (or US $0.27)/kg in 1981 to 44 pesetas (or US $0.43)/kg in 1991, a jump of more than 69 percent (figure A-4). However, rice producers face different prices in different production regions. For example, the average price of japonica was 43 pesetas/kg in Tarragona and Valencia in 1991, compared to 41.3 pesetas/kg in Extremadura.

On the other hand, indica rice price was 44-45 pesetas/kg in Seville and Extremadura during the same period. The higher price in Seville is due to the proximity of the rice milling industry. Long grain rice produced in Extremadura is milled in Seville. The difference in price between these regions primarily reflects transportation costs. Yields and acreage also differ by region (table A-2).

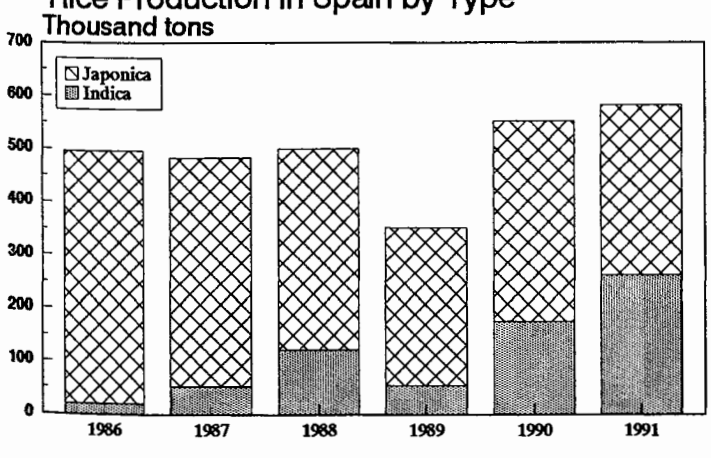
Although there are no official estimates on production costs, preliminary estimates based on a survey of rice farmers conducted by the University of Corodoba indicate wide differences between regions. In 1991, per-hectare production variable costs were estimated to range between about 160,000 pesetas (or US $675 per acre) in Extremadura and 226,000 pesetas (or US $953 per acre) in Seville. These costs include only variable cash expenses and interest on operating loans. The cost of machinery operations such as land preparation, seeding, crop spraying, harvesting, hauling, and drying is estimated for each region by the cost of hiring machinery to perform these operations, since this is a common practice among medium and small farmers.

This method may overestimate production costs in Seville for a given year because more than 30 percent of the rice area belongs to farms with more than 100 hectares. These large scale farms usually own the machinery to perform most operations. However, the relatively high cost of production in the Seville region is due to the higher water and pesticide expenses induced by environmental regulations. On the other hand, Extremadura has the lowest production costs among all the regions. Indica rice production is concentrated in Extremadura and Seville.

3/ La Aplicacion de la P.A.C. en Espana. Ministerio de Agricultura Pesca y Alimentacion.

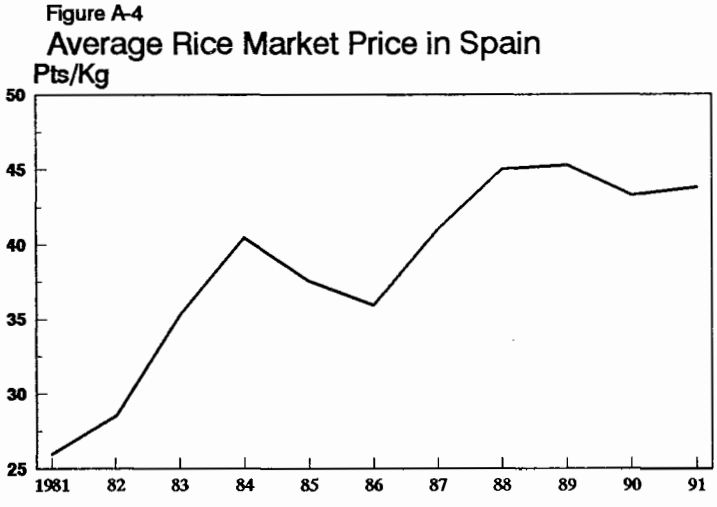
4/ Calculated by using exchange rate of US $1 = Approx. 96 Pesetas as of July 9, 1992.

Figure A-3



Source: E.E.N.P.A. Ministerio de Agricultura Pesca y Alimentacion.

Figure A-4



Source: Anuario de Estadistica Agraria. Ministerio de Agricultura Pesca y Alimentacion (1981-89).

Survey conducted at the University of Corodoba, Corodoba, Spain (1990-91).

Table A-2--Rice acreage and average yield in Spain, by region

Year	Tarragona	Valencia	Seville	Extremadura	National
			Hectares		
1991	22,000	16,000	37,000	35,000	110,000
			Mt/ha		
1981	7.07	6.50	6.85	5.62	6.51
1982	6.72	6.60	5.22	5.87	6.10
1983	5.44	6.15	4.37	4.44	5.10
1984	5.21	7.00	6.49	5.99	6.17
1985	5.36	7.19	6.50	6.12	6.29
1986	6.17	6.40	6.50	6.22	6.32
1987	5.50	7.35	6.40	6.41	6.42
1988	5.21	7.65	6.32	6.34	6.38
1989	5.53	5.33	6.50	6.45	5.95
1990	6.29	7.50	6.10	6.41	6.58
1991	6.11	6.94	6.98	7.08	6.78
Average	5.87	6.78	6.20	6.09	6.24

Sources: Anuario de Estadistica Agraria, Ministerio de Agricultura Pesca y Alimentacion, Various issues. Years 1981 to 1989.

Boletin Mensual de Estadistica, Ministerio de Agricultura Pesca y Alimentacion, 1991. Year 1990.

Survey conducted at the University of Cordoba, Cordoba, Spain. Year 1991 and rice acreage.

Consumption

Per capita consumption of rice in Spain has stabilized at 6 kg, down from a peak of 8.5 kg in the early 1960's. This seems to be due to increases in income and changes in tastes and preferences to include more livestock products such as meat, dairy, etc. in the diet. Spanish consumers favor medium grain rice, but consumption of long grain varieties is gradually increasing, partly because of increasing availability of long grain rice and favorable prices (1). Consumption of specialty rices, such as parboiled, precooked, aromatic, and brown is still insignificant.

Trade

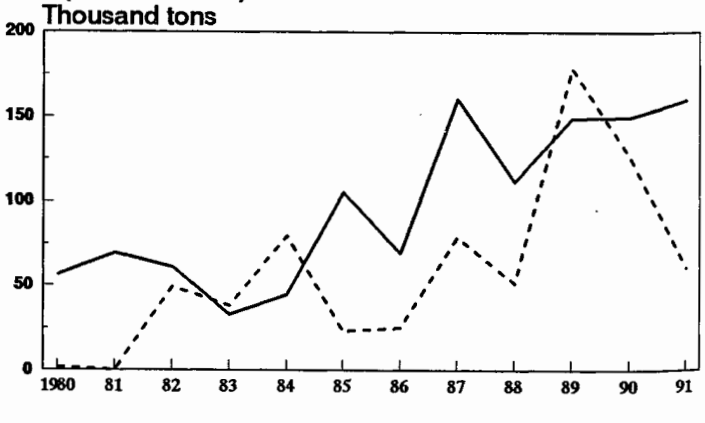
Spain's integration in the EC has increased both its imports and exports of rice (figure 5). However, Spain remained a net rice exporter throughout the 1980's with the exception of 1983 and 1989, which were two especially dry years. But, changing production and consumption patterns and support favoring indica production, Spain, a traditional exporter of japonica rice, has become a net exporter of indica rice and a net importer of japonica. In 1990, exports of long grain indica rice were about 100,000 tons, accounting for 74 percent of rice exports.

Imports, insignificant before 1982, now play an important role in Spain's rice market. Imports include both indica and japonica rice. Most long grain is imported for re-export. The primary purpose of long grain rice imports is to keep processing facilities operating throughout the year, thus reducing per-unit operating costs.

Besides changes in the mix of Spain's rice trade, the mix of countries buying from Spain has also changed. The EC now is the largest market, accounting for approximately 72 percent of Spain's rice exports in 1991, up from 28 percent in 1985. Other important importers are the North Africa, certain African countries, and Finland (figure A-6).

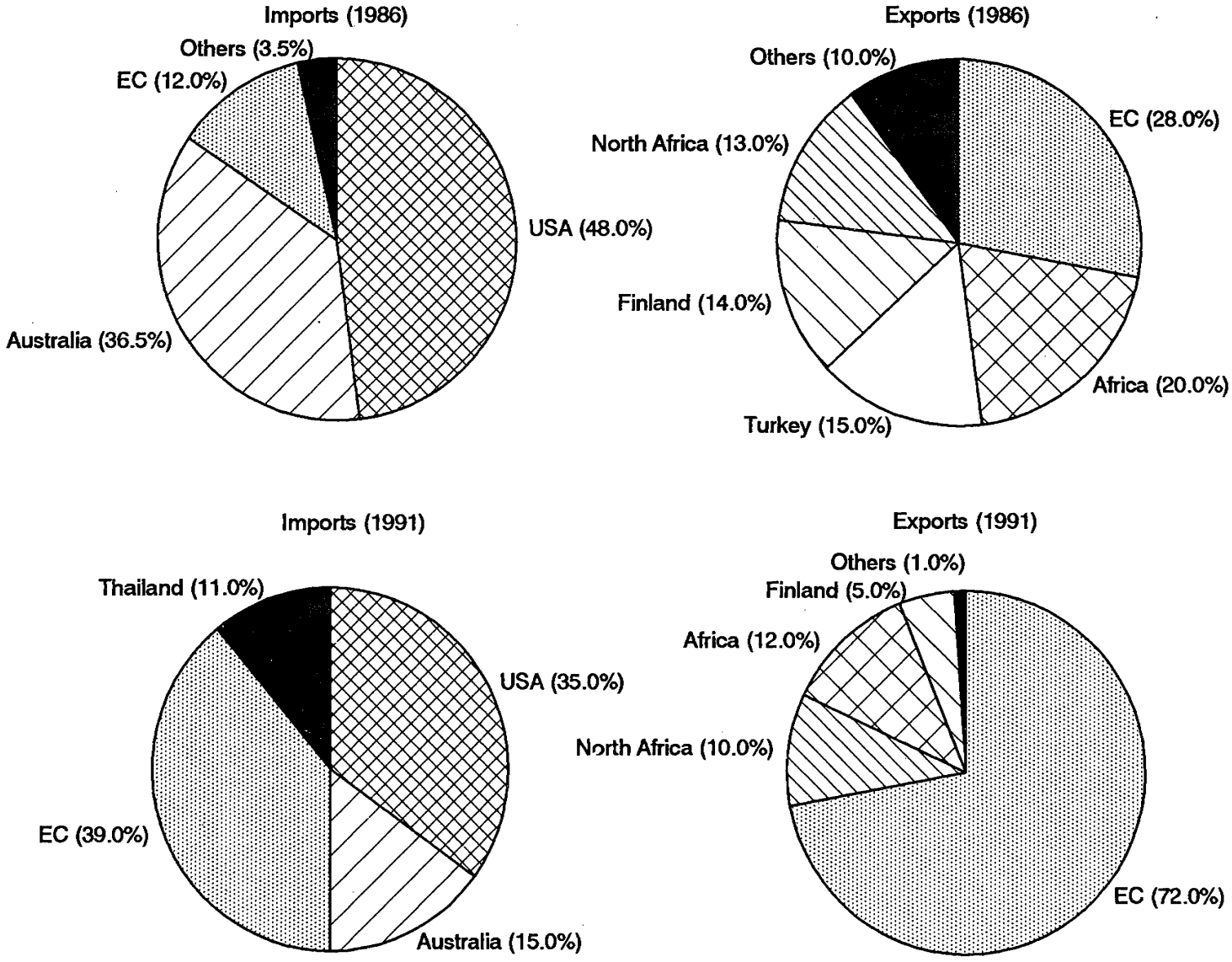
Dramatic changes in the mix have occurred on the import side as well. In 1985, U.S. was the largest supplier (48 percent) followed by Australia (36.5 percent), and the EC (12 percent). However, in 1991, due to favorable terms under the CAP, the EC has become the largest supplier (39 percent) of rice to Spain. The EC is followed by the U.S. (35 percent), Australia (15 percent), and Thailand (11 percent). Spain's integration into the EC apparently increased rice ex-

Figure A-5
Annual Spanish Rice Imports and Exports (Milled Basis)



Source: Estadistica de Comercio Exterior de Espana. Ministerio de Economia y Hacienda (Various issues).

Figure A-6
Spain's Rice Trade in 1986 and 1991



Source: Estadistica de Comercio Exterior de Espana. Ministerio de Economia y Hacienda (Various issues).

ports of other EC member countries and Thailand, and decreased exports from the U.S. and Australia.

Outlook for the 1990's

Production

In 1991/92, production incentives derived from the adjustment to EC market regulations came to an end, indicating the beginning of a less favorable environment for rice producers. For example, in the current marketing year, intervention prices diminished for the first time (figure A-2) and the amount of subsidy to indica rice producers reached its lowest level, from about 56,000 pesetas (or US $583) in 1987 to 30,000 pesetas (or US $313) in 1991, a decline of more than 46 percent. Recently, the EC announced the elimination of the special subsidy to indica rice producers since the desired objective, to induce long-grain rice production within the EC, had been achieved. Now, most of the area in Spain where indica rice can be grown is being cultivated with this type.

It seems that the subsidy elimination will not seriously alter indica acreage in Spain but it might help stop the expansion of long grain production in other EC countries where weather conditions are less favorable. However, there are three major factors that may restrain the development of Spain's rice market: 1) Inadequate farm structure, especially farm size, to adopt new, but costly, technology, 2) scarce irrigation water, and 3) environmental constraints. These factors do not equally affect all rice producing areas.

It appears that a large proportion of Mediterranean rice farms will have difficulty undertaking necessary technical and structural changes required to compete in a freer trade environment. The situation is particularly critical in Valencia, where the smallest average farm size of 2 hectares makes it very difficult to adopt major technological innovations.

Farms in non-Mediterranean regions are in a better position to make efficient use of agricultural inputs because of recently completed major irrigation projects. Younger farm population in these regions also complements decisions related to investments in farm improvements. Additionally, both Seville and Extremadura are well suited for growing long-grain indica rice that is in high demand in Europe. In 1991, indica varieties were more than 90 percent of the rice acreage in Seville and about 30 percent in Extremadura. In Extremadura, long-grain indica rice acreage is expected to increase substantially in 1992. On the other hand, expansion in Tarragona and Valencia is currently constrained because of the sensitivity of available long-grain rice varieties to the lower air and water temperatures.

In spite of Seville's comparative advantage, scarcity of water supplies and environmental constraints will limit any major rice acreage expansion in the near future. Water restrictions could also become a problem in Extremadura in low rainfall years, although recent improvements in irrigation facilities allow for limited acreage expansion. Therefore, any major development in rice production in Spain will probably be restricted to Extremadura.

Moreover, it is expected that the Common Agricultural Policy (CAP) reform and possible successful completion of the GATT negotiations will produce further reductions in EC rice protection, which might stop or even reverse production trends of the past 5 years (3). Also, the elimination of special subsidy to indica rice producers (announced in June 1992) will discourage further increases in rice acreage within the EC and may even divert marginal acres to crops other than rice. Hence, future production developments in Spain will depend on how the rice sector confronts forthcoming challenges stemming from more competitive markets. The special rice subsidy elimination provides an opportunity for exporters such as the U.S. to try to recapture some of the lost market share, especially if the domestic rice production falls. However, now the U.S. will face stiff competition not only from low cost exporters such as Thailand but from Spanish producers of indica rice as well.

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List of Tables

Appendix tables **Page**

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/ (as of July 1992)
Total rice:						
Area planted	Mil. acre	2.93	2.73	2.90	2.86	NA
Area harvested	"	2.90	2.69	2.82	2.75	NA
Yield	Pounds/acre	5,514	5,749	5,529	5,617	NA
Beginning stocks 3/	Mil. cwt	31.40	26.70	26.30	24.60	30.70
Production	"	159.90	154.50	156.10	154.50	166.00
Imports	"	3.80	4.40	4.80	5.50	6.00
Total supply	"	195.10	185.60	187.20	184.50	202.70
Domestic & residual 4/	"	82.50	82.10	91.70	92.80	94.30
Exports	"	85.90	77.20	70.90	61.00	74.00
Total use	"	168.40	159.30	162.60	153.80	168.30
Ending stocks	"	26.70	26.30	24.60	30.70	34.40
CCC	"	0.10	0.40	0.00	0.00	0.00
Free	"	26.60	25.90	24.60	30.70	34.40
Average market price 5/	$/cwt	6.83	7.35	6.70	(7.50-7.55)	(6.25-7.25)
Long:						
Area harvested	Mil. acres	2.23	2.00	2.07	2.02	NA
Yield	Pounds/acre	5,345	5,464	5,221	5,393	NA
Beginning stocks	Mil. cwt	19.10	15.40	13.20	11.50	19.00
Production	"	119.40	109.20	107.80	109.00	117.00
Total supply 6/	"	142.10	128.90	125.70	126.00	141.90
Domestic & residual 4/	"	55.60	54.90	58.20	59.50	61.00
Exports	"	71.20	60.80	56.00	47.50	60.00
Total use	"	126.80	115.70	114.20	107.00	121.00
Ending stocks	"	15.40	13.20	11.50	19.00	20.90
Average market price 5/	$/cwt	6.96	7.59	6.94	NA	NA
Medium/short:						
Area harvested	Mil. acres	0.67	0.69	0.76	0.73	NA
Yield	Pounds/acre	6,077	6,579	6,370	6,237	NA
Beginning stocks	Mil. cwt	10.80	9.00	11.60	11.70	10.30
Production	"	40.50	45.30	48.30	45.40	49.00
Total supply 6/	"	51.40	54.30	60.00	57.10	59.40
Domestic & residual 4/	"	27.80	26.30	33.40	33.30	33.30
Exports	"	14.70	16.40	14.90	13.50	14.00
Total use	"	42.50	42.70	48.30	46.80	47.30
Ending stocks	"	9.00	11.60	11.70	10.30	12.10
Average market price 5/	$/cwt	6.47	6.71	6.19	NA	NA

NA = Not available.
Note: Totals might not add because of rounding.
1/ Marketing year beginning August 1. 2/ Projected. 3/ 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. 4/ 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. 5/ Marketing year weighted average price received by farmers. 6/ Includes imports.

Appendix table 2--Rough and milled rice (rough equivalent): Marketing year supply and disappearance, 1962/63-1992/93

Year beginning Aug. 1	Supply: Beginning stocks	Supply: Production	Supply: Imports	Supply: Total	Disappearance: Domestic use: Food	Seed	Brewers	Total	Exports	Residual	Total disappearance	Ending stocks--July 31: CCC inventory	Free	Total
					Million cwt									
1962/63	5.4	66.0	0.0	71.4	21.5	2.4	4.1	28.0	35.5	0.2	63.7	1.8	5.9	7.7
1963/64	7.7	70.3	0.0	78.0	22.5	2.4	3.8	28.7	41.8	0.0	70.5	1.4	6.1	7.5
1964/65	7.5	73.2	0.5	81.2	24.2	2.5	4.3	31.0	42.5	0.0	73.5	1.1	6.6	7.7
1965/66	7.7	76.3	0.6	84.6	23.5	2.7	4.7	30.9	43.3	2.2	76.4	0.6	7.6	8.2
1966/67	8.2	85.0	0.1	93.3	23.9	2.7	5.3	32.0	51.6	1.2	84.8	0.2	8.3	8.5
1967/68	8.5	89.4	0.0	97.9	25.0	3.2	5.4	33.6	56.9	0.6	91.1	0.1	6.7	6.8
1968/69	6.8	104.1	0.0	110.9	27.0	2.9	5.8	35.7	56.1	2.9	94.7	5.5	10.7	16.2
1969/70	16.2	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	0.1	26.6	26.7
1989/90	26.7	154.5	4.4	185.6	60.1	3.6	15.4	79.1	77.2	3.0	159.3	0.4	25.9	26.3
1990/91	26.3	156.1	4.8	187.2	63.8	3.6	15.3	82.7	70.9	9.0	162.6	0.0	24.6	24.6
1991/92 1/	24.6	154.5	5.5	184.5	66.0	3.8	15.0	84.8	61.0	8.0	153.8	0.0	30.7	30.7
1992/93 2/	30.7	166.0	6.0	202.7	68.5	3.8	15.0	87.3	74.0	7.0	168.3	0.0	34.4	34.4

1/ Estimated. 2/ Projected as of July 1992.

Appendix table 3--Long grain rough and milled rice (rough equivalent): Marketing year supply and disappearance, 1982/83-1992/93

Year beginning August 1	Supply			Disappearance			Ending stocks
	Beginning stocks	Production	Total 1/	Domestic 2/ and residual	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	13.2
1990/91	13.2	107.8	125.7	58.2	56.0	114.2	11.5
1991/92 3/	11.5	109.0	126.0	59.5	47.5	107.0	19.0
1992/93 4/	19.0	117.0	141.9	61.0	60.0	121.0	20.9

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 1992.

Appendix table 4--Medium/short grain rough and milled rice (rough equivalent): Marketing year supply and disappearance, 1982/83-1992/93

Year beginning August 1	Supply			Disappearance			Ending stocks
	Beginning stocks	Production	Total 1/	Domestic 2/ and residual	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	60.0	33.4	14.9	48.3	11.7
1991/92 3/	11.7	45.4	57.1	33.3	13.5	46.8	10.3
1992/93 4/	10.3	49.0	59.4	33.3	14.0	47.3	12.1

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 1992.

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

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, 1974/75-1990/91

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 2/	72.38	70.59	72.01

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
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 2/	20,658	8,283	46,631	211	75,783	3,888	837	952	5,677
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

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, 1983-91

State	1983	1984	1985	1986	1987	1988	1989	1990	1991
					1,000 cwt				
Long grain:									
Arkansas	33,012	46,320	50,712	49,462	45,259	57,447	57,458	53,034	58,328
California	1,309	4,288	3,834	1,520	2,592	4,200	2,250	1,314	1,080
Louisiana	7,622	13,899	14,418	14,061	12,079	17,538	13,128	14,805	12,500
Mississippi	6,440	8,265	10,058	10,692	10,098	13,275	13,395	14,250	12,320
Missouri	2,460	3,358	3,415	3,335	3,420	4,080	4,056	3,713	4,641
Texas	13,475	19,899	17,930	17,703	15,547	22,824	18,874	20,690	20,180
United States	64,318	96,029	100,367	96,773	88,995	119,364	109,161	107,806	109,049
Medium grain:									
Arkansas	5,784	6,400	3,809	4,544	7,656	7,236	6,322	6,912	8,392
California	14,129	20,520	18,628	21,917	22,496	22,050	26,315	28,215	23,510
Louisiana	7,071	8,033	5,838	5,319	7,031	6,542	8,360	11,664	12,235
Mississippi	1/	1/	1/	1/	1/	505	1/	1/	1/
Missouri	74	90	48	99	144	102	52	47	51
Texas	330	261	141	360	324	456	392	490	400
United States	27,388	35,304	28,464	32,239	37,651	36,891	41,441	47,328	44,589
Short grain:									
Arkansas	363	180	76	54	110	52	60	54	60
California	7,651	7,252	6,006	4,290	2,847	3,590	3,825	900	760
Missouri	1/	45	1/	1/	1/	1/	1/	1/	1/
United States	8,014	7,477	6,082	4,344	2,957	3,642	3,885	954	820
Total grains:									
Arkansas	39,159	52,900	54,597	54,060	53,025	64,735	63,840	60,000	66,780
California	23,089	32,060	28,468	27,727	27,935	29,840	32,390	30,429	25,350
Louisiana	14,693	21,932	20,256	19,380	19,110	24,080	21,488	26,469	24,735
Mississippi	6,440	8,265	10,058	10,692	10,098	13,780	13,395	14,250	12,320
Missouri	2,534	3,493	3,463	3,434	3,564	4,182	4,108	3,760	4,692
Texas	13,805	20,160	18,071	18,063	15,871	23,280	19,266	21,180	20,580
United States	99,720	138,810	134,913	133,356	129,603	159,897	154,487	156,088	154,457

1/ No grain estimates.

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

State	Area harvested			Yield			Production		
	1989	1990	1991	1989	1990	1991	1989	1990	1991
	-----1,000 acres-----			------Pounds/acre-----			--------1,000 cwt--------		
Long grain:									
Arkansas	1,030	1,071	1,111	5,580	4,950	5,250	57,458	53,034	58,328
California	30	18	15	7,500	7,300	7,200	2,250	1,314	1,080
Louisiana	295	304	250	4,450	4,870	5,000	13,128	14,805	12,500
Mississippi	235	250	220	5,700	5,700	5,600	13,395	14,250	12,320
Missouri	78	79	91	5,200	4,700	5,100	4,056	3,713	4,641
Texas	330	343	335	5,720	6,030	6,024	18,874	20,690	20,180
United States	1,998	2,065	2,022	5,464	5,221	5,393	109,161	107,806	109,049
Medium grain:									
Arkansas	109	128	148	5,800	5,400	5,670	6,322	6,912	8,392
California	330	365	300	7,974	7,730	7,837	26,315	28,215	23,510
Louisiana	190	241	260	4,400	4,840	4,706	8,360	11,664	12,235
Mississippi	1/	1/	1/	1/	1/	1/	1/	1/	1/
Missouri	1	1	1	5,200	4,700	5,100	52	47	51
Texas	8	10	8	4,900	4,900	5,000	392	490	400
United States	638	745	717	6,495	6,353	6,219	41,441	47,328	44,589
Short grain:									
Arkansas	1	1	1	6,000	5,400	6,000	60	54	60
California	50	12	10	7,650	7,500	7,600	3,825	900	760
United States	51	13	11	7,618	7,338	7,455	3,885	954	820
Total:									
Arkansas	1,140	1,200	1,260	5,600	5,000	5,300	63,840	60,000	66,780
California	410	395	325	7,900	7,700	7,800	32,390	30,429	25,350
Louisiana	485	545	510	4,430	4,860	4,850	21,488	26,469	24,735
Mississippi	235	250	220	5,700	5,700	5,600	13,395	14,250	12,320
Missouri	79	80	92	5,200	4,700	5,100	4,108	3,760	4,692
Texas	338	353	343	5,700	6,000	6,000	19,266	21,180	20,580
United States	2,687	2,823	2,750	5,749	5,529	5,617	154,487	156,088	154,457

1/ No medium grain estimated.

Source: Annual Crop Production 1991 Summary, January 1992 issue, National Agricultural Statistics Service, USDA.

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

State	Area planted						
	1987	1988	1989	1990	1991	1992 1/	1992/91
	1,000 acres						Percent
Long grain:							
Arkansas	885	1,084	1,039	1,110	1,149	1,199	104
California	36	60	30	18	15	16	107
Louisiana	265	395	310	310	290	360	124
Mississippi	200	255	240	255	225	240	107
Missouri	64	81	80	91	96	109	114
Texas	264	382	332	345	337	335	99
United States	1,714	2,257	2,031	2,129	2,112	2,259	107.0
Medium grain:							
Arkansas	133	135	110	129	150	150	100
California	299	320	335	370	305	351	115
Louisiana	160	150	195	245	270	240	89
Mississippi	2/	10	2/	2/	2/	2/	2/
Missouri	3	2	1	1	1	1	100
Texas	6	8	8	10	8	15	188
United States	601	625	649	755	734	757	103.1
Short grain:							
Arkansas	2	1	1	1	1	1	100
California	39	50	50	12	10	8	80
United States	41	51	51	13	11	9	81.8
Total:							
Arkansas	1,020	1,220	1,150	1,240	1,300	1,350	104
California	374	430	415	400	330	375	114
Louisiana	425	545	505	555	560	600	107
Mississippi	200	265	240	255	225	240	107
Missouri	67	83	81	92	97	110	113
Texas	270	390	340	355	345	350	101
United States	2,356	2,933	2,731	2,897	2,857	3,025	105.9

1/ Intended plantings in 1992 as indicated by reports from farmers. 2/ No medium grain estimated.

Source: Crop Production and Prospective Plantings, March 1992.
National Agricultural Statistics Service, USDA.
Acreage, June 1992, National Agricultural Statistics Service, USDA.

Appendix table 11--U.S. rice acreage, yield, and production, 1958-91

Crop year 1/	Planted	Harvested	Diverted	Yield	Production
	1,000 acres			Lbs./acre	1,000 cwt
1958	1,440	1,415	---	3,164	44,760
1959	1,608	1,586	---	3,382	53,647
1960	1,614	1,595	---	3,423	54,591
1961	1,618	1,589	---	3,411	54,198
1962	1,796	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	---	4,326	85,020
1967	1,982	1,970	---	4,538	89,379
1968	2,367	2,353	---	4,424	104,075
1969	2,141	2,128	---	4,272	90,838
1970	1,826	1,815	---	4,617	83,754
1971	1,826	1,818	---	4,719	85,768
1972	1,824	1,818	---	4,697	85,439
1973	2,181	2,170	---	4,276	92,765
1974	2,550	2,531	---	4,440	112,394
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/	2,897	2,823	1,022	5,529	156,088
1991 3/	2,857	2,750	1,110	5,617	154,457

--- = 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, 1953-91

Crop year	United States	Arkansas	Louisiana	Mississippi	Texas	California
			Pounds			
1953	2,447	2,300	2,075	2,550	2,625	2,900
1954	2,517	2,500	2,350	2,625	2,675	2,550
1955	3,061	3,125	2,800	2,850	3,050	3,450
1956	3,151	3,200	2,700	2,850	2,900	4,200
1957	3,204	3,100	2,675	3,200	3,200	4,300
1958	3,164	2,950	2,650	2,800	3,100	4,450
1959	3,382	3,400	2,850	2,700	3,150	4,650
1960	3,423	3,525	2,850	2,950	3,075	4,775
1961	3,411	3,500	2,925	3,300	2,900	4,800
1962	3,726	3,850	3,050	3,200	3,550	4,950
1963	3,968	4,300	3,325	3,900	4,125	4,325
1964	4,098	4,300	4,300	3,800	4,150	5,050
1965	4,255	4,300	3,550	3,700	4,600	4,900
1966	4,326	4,300	3,700	4,300	4,200	5,500
1967	4,538	4,550	3,900	4,300	5,000	4,900
1968	4,424	4,350	3,900	4,300	4,600	5,325
1969	4,272	3,950	3,400	4,200	3,950	5,525
1970	4,617	4,900	3,900	4,400	4,450	5,700
1971	4,719	5,050	3,800	4,600	5,100	5,200
1972	4,697	4,975	3,825	4,559	4,727	5,614
1973	4,276	4,770	3,451	4,306	3,740	5,616
1974	4,440	4,535	3,650	4,180	4,494	5,380
1975	4,558	4,770	3,810	3,900	4,560	5,750
1976	4,663	4,230	3,910	4,200	4,810	5,520
1977	4,412	4,230	3,670	4,000	4,670	5,810
1978	4,484	4,450	3,820	4,250	4,700	5,220
1979	4,599	4,320	3,910	4,050	4,220	6,520
1980	4,413	4,110	3,550	3,840	4,230	6,440
1981	4,819	4,520	4,060	4,390	4,700	6,900
1982	4,710	4,290	4,160	4,120	4,690	6,700
1983	4,598	4,280	3,820	4,000	4,340	7,040
1984	4,954	4,600	4,150	4,350	4,940	7,120
1985	5,414	5,200	4,370	5,350	5,490	7,300
1986	5,651	5,300	4,550	5,400	6,250	7,700
1987	5,555	5,250	4,550	5,100	5,900	7,550
1988	5,514	5,350	4,500	5,300	6,000	7,020
1989	5,749	5,600	4,430	5,700	5,700	7,900
1990	5,529	5,000	4,860	5,700	6,000	7,700
1991 1/	5,617	5,300	4,850	5,600	6,000	7,800

1/ Preliminary.

Appendix table 13--Proportional distribution of rice production, by type of grain, United States, 1953-91

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	104,075
1969	49.0	40.3	10.7	90,838
1970	49.3	40.4	10.3	83,754
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	112,394
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 1/	70.6	28.9	0.5	154,457

1/ Estimated.

Appendix table 14--Use and ending stocks for rice, United States, 1953-91

Crop year	Food 1/	Seed	Brewer	Exports	Total use 2/	Ending stocks	Stocks-to-use ratio
	Mil. cwt						Percent
1953	17.3	3.1	4.6	22.7	47.2	7.5	16.0
1954	18.7	2.2	5.6	14.3	45.1	26.7	59.2
1955	19.1	2.0	6.0	18.7	48.2	34.6	71.9
1956	19.2	1.7	5.1	37.5	64.5	20.0	30.9
1957	19.0	1.8	4.8	18.3	45.0	18.2	40.4
1958	18.8	2.1	4.7	19.8	47.4	15.7	33.0
1959	20.7	2.1	5.0	29.2	58.0	12.2	21.0
1960	19.9	2.1	4.9	29.5	56.9	10.0	17.7
1961	22.6	2.4	4.7	29.2	59.3	5.3	9.0
1962	21.5	2.4	4.1	35.5	63.7	7.7	12.1
1963	22.5	2.4	3.8	41.8	70.5	7.5	10.6
1964	24.2	2.5	4.3	42.5	73.5	7.7	10.5
1965	23.5	2.7	4.7	43.3	76.4	8.2	10.7
1966	23.9	2.7	5.3	51.6	84.8	8.5	10.0
1967	25.0	3.2	5.4	56.9	91.1	6.8	7.5
1968	27.0	2.9	5.8	56.1	94.7	16.2	17.1
1969	23.5	2.5	7.1	56.9	91.9	16.4	17.8
1970	25.1	2.5	6.8	46.5	83.1	18.6	22.4
1971	25.5	2.5	7.4	56.9	94.1	11.4	12.2
1972	25.1	3.0	7.7	54.0	92.3	5.1	5.6
1973	26.1	3.6	8.1	49.7	90.2	7.8	8.7
1974	28.6	4.0	8.4	69.5	113.2	7.1	6.2
1975	27.7	3.5	9.1	56.5	98.6	36.9	37.4
1976	29.2	3.2	10.3	65.6	112.1	40.5	36.1
1977	23.5	4.3	9.9	72.8	112.4	27.4	24.4
1978	33.7	4.3	11.2	75.7	129.1	31.6	24.5
1979	33.2	4.8	11.2	82.6	137.9	25.7	18.6
1980	38.4	5.1	11.0	91.4	155.6	16.5	10.6
1981	42.5	4.4	12.7	82.0	150.6	49.0	32.5
1982	37.6	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	60.1	3.6	15.4	77.2	159.3	26.3	16.5
1990	63.8	3.6	15.3	70.9	162.6	24.6	15.1
1991 3/	66.0	3.8	15.0	61.0	153.8	30.7	20.0

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, 1953-91

Crop year	Ending stocks CCC 1/	Ending stocks Free	Ending stocks Total	Farm price	Loan rate	Target price	Direct payment
	Mil. cwt			$/cwt			
1953	1.2	6.3	7.5	4.93	4.84	---	---
1954	18.4	8.3	26.7	4.25	4.92	---	---
1955	27.4	7.2	34.6	5.00	4.66	---	---
1956	12.6	7.4	20.0	4.93	4.57	---	---
1957	12.0	6.2	18.2	5.16	4.72	---	---
1958	9.5	6.2	15.7	4.96	4.48	---	---
1959	6.9	5.3	12.2	4.60	4.38	---	---
1960	4.1	5.9	10.0	4.41	4.42	---	---
1961	0.3	5.0	5.3	5.20	4.71	---	---
1962	1.8	5.9	7.7	5.10	4.71	---	---
1963	1.4	6.1	7.5	4.92	4.71	---	---
1964	1.1	6.6	7.7	4.87	4.71	---	---
1965	0.6	7.6	8.2	4.98	4.50	---	---
1966	0.2	8.3	8.5	4.80	4.50	---	---
1967	0.1	6.7	6.8	5.12	4.55	---	---
1968	5.5	10.7	16.2	4.90	4.60	---	---
1969	6.4	10.0	16.4	5.32	4.72	---	---
1970	9.5	9.1	18.6	5.41	4.86	---	---
1971	2.7	8.7	11.4	5.62	5.07	---	---
1972	0.1	5.0	5.1	7.20	5.27	---	---
1973	0.0	7.8	7.8	15.30	6.07	---	---
1974	0.0	7.1	7.1	11.40	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	0.2	31.2	31.4	7.27	6.84	11.66	4.82
1988	0.1	26.6	26.7	6.83	6.63	11.15	4.31
1989	0.4	25.9	26.3	7.35	6.50	10.80	3.56
1990	0.0	24.6	24.6	6.70	6.50	10.71	4.16
1991 2/	0.0	30.7	30.7	7.50-7.55	6.50	10.71	3.07

--- = Not applicable.
1/ Commodity Credit Corporation. 2/ Estimated.

Appendix table 16--Rice Program Provisions, 1985-92

Item	Unit	Crop year							
		1985	1986	1987	1988	1989	1990	1991	1992
Target price	$/cwt	11.90	11.90	11.66	11.15	10.80	10.71	10.71	10.71
Statutory loan rate	"	8.00	7.20	6.84	6.63	6.50	6.50	6.50	6.50
Acreage reduction/paid diversion	Pct.	20/15	35	35	25	25	20	5	0
Participation rate	"	90	94	96	94	94	95	95	93

NA = Not available.

Appendix table 17--Class loan rates and differentials, 1984-92

Item	Crop year								
	1984	1985	1986	1987	1988	1989	1990	1991	1992
	$/cwt								
Milled rice:									
Long whole kernels	14.96	14.53	12.44	11.36	10.89	10.81	10.84	10.74	10.74
Medium and short whole kernels	10.81	10.50	10.44	10.36	9.89	9.81	9.84	9.74	9.74
Broken kernels	6.20	6.02	4.98	5.68	5.45	5.41	5.42	5.37	5.37
Differential (milled basis) 1/	4.15	4.03	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Rough rice 2/:									
Average, all classes	8.00	8.00	7.20	6.84	6.63	6.50	6.50	6.50	6.50
Average, long grain	8.71	8.68	7.52	7.03	6.75	6.68	6.68	6.65	6.66
Average, medium grain	6.67	6.49	6.36	6.54	6.33	6.13	6.21	6.11	6.13
Average, short grain	6.65	6.49	6.44	6.39	5.98	5.98	6.12	6.07	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 kernel's 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		
1986:							
April 11	6.78	7.36	7.36	3.40	4.19	4.47	4.53
April 18	6.78	5.86	5.86	3.39	4.18	3.65	3.70
April 29 - May 6	6.68	5.73	5.74	3.34	4.13	3.58	3.62
May 13	5.90	4.99	5.00	2.95	3.65	3.12	3.06
May 20	5.83	4.89	4.89	2.91	3.60	3.06	3.10
May 27 - June 24	5.78	4.79	4.79	2.89	3.57	3.00	3.04
July 1 - July 22	5.89	4.79	4.79	2.94	3.63	3.01	3.05
July 29 - August 5	6.07	4.96	4.96	3.04	3.75	3.11	3.15
August 12 - September 2	6.15	5.04	5.04	3.08	3.80	3.16	3.21
September 9 - September 30	5.90	4.81	4.81	2.95	3.64	3.02	3.06
October 7 - October 14	5.84	4.91	4.92	2.92	3.60	3.07	3.11
October 21 - November 18	5.85	5.06	5.07	2.93	3.62	3.15	3.20
November 25 - December 9	5.69	5.06	5.07	2.85	3.52	3.15	3.19
December 16 - December 30	5.57	4.95	4.95	2.78	3.44	3.07	3.12
1987:							
January 20 - March 31	5.70	5.12	5.06	2.85	3.53	3.23	3.13
April 7 - April 21	5.87	5.28	5.22	2.94	3.63	3.34	3.23
April 28	5.98	5.28	5.21	2.99	3.70	3.34	3.23
May 5 - May 19	5.98	5.38	5.31	2.99	3.70	3.40	3.29
May 26 - June 23	6.11	5.52	5.45	3.06	3.78	3.49	3.37
June 30	6.00	5.39	5.32	3.00	3.71	3.41	3.30
July 7 - July 21	5.89	5.29	5.22	2.95	3.65	3.35	3.23
July 28	6.02	5.45	5.38	3.01	3.73	3.44	3.33
August 4	6.15	5.58	5.51	3.07	3.81	3.52	3.41
August 11	6.27	5.69	5.62	3.13	3.88	3.59	3.48
August 18	6.39	5.69	5.62	3.19	3.95	3.60	3.48
August 25	6.51	5.84	5.76	3.25	4.03	3.69	3.57
September 1	6.76	6.11	6.03	3.38	4.18	3.86	3.73
September 8	7.28	6.56	6.49	3.64	4.51	4.15	4.02
September 15	7.90	7.22	7.14	3.95	4.89	4.56	4.41
September 22	8.66	7.95	7.87	4.33	5.36	5.01	4.86
September 29 - October 6	9.54	8.80	8.73	4.77	5.91	5.55	5.39
October 13 - October 27	10.21	9.42	9.35	5.10	6.32	5.94	5.77
November 3 - November 10	9.88	9.05	8.99	4.94	6.12	5.71	5.55
November 17 - November 24	9.81	9.04	8.93	4.91	5.90	5.63	5.43
December 1 - December 8	9.42	8.57	8.47	4.71	5.66	5.35	5.16
December 15 - December 29	9.42	8.43	8.32	4.71	5.66	5.27	5.08
1988:							
January 5	9.42	8.43	8.32	4.71	5.66	5.27	5.08
January 12	9.90	8.84	8.73	4.95	5.95	5.52	5.34
January 19 - January 26	11.22	9.72	9.61	5.61	6.74	6.10	5.90
February 2 - March 22	11.66	10.24	10.14	5.83	7.01	6.41	6.21
March 29	11.61	10.25	10.15	5.80	6.98	6.41	6.22
April 5 - April 19	11.83	10.46	10.36	5.92	7.12	6.54	6.35
April 26	11.56	10.31	10.21	5.78	6.95	6.44	6.25
May 3 - May 10	11.02	9.97	9.88	5.51	6.63	6.22	6.03
May 17 - May 31	10.58	9.72	9.62	5.29	6.37	6.05	5.86
June 7	10.09	9.28	9.18	5.04	6.07	5.78	5.59
June 14	10.28	9.44	9.34	5.14	6.19	5.88	5.69
June 21-28	10.69	9.87	9.77	5.35	6.43	6.14	5.95
July 5-12	10.98	10.17	10.08	5.49	6.61	6.32	6.13
July 19 - August 2	11.13	10.33	10.25	5.56	6.69	6.42	6.23
August 9	10.85	9.99	9.91	5.42	6.52	6.22	6.03
August 16	10.55	9.72	9.64	5.27	6.34	6.05	5.87
August 23 - September 6	10.68	9.82	9.74	5.34	6.42	6.11	5.93
September 13	10.43	9.57	9.48	5.22	6.28	5.96	5.78
September 20 - October 4	10.30	9.43	9.34	5.15	6.19	5.87	5.69
October 11 - October 25	10.13	9.30	9.21	5.07	6.10	5.79	5.61
November 1	10.03	9.23	9.16	5.01	6.18	5.78	5.53
November 8 - December 13	9.87	9.08	9.01	4.94	6.10	5.69	5.44
December 20 - December 27	9.55	8.80	8.74	4.77	5.90	5.51	5.27

See footnote at end of table.

Continued--

Appendix table 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		
1989:							
January 3 - January 10	9.55	8.80	8.74	4.77	5.90	5.51	5.27
January 17 - January 24	9.79	9.12	9.07	4.89	6.05	5.71	5.46
January 31 - February 21	9.97	9.29	9.23	4.98	6.16	5.82	5.55
February 28 - March 7	10.11	9.46	9.38	5.06	6.25	5.92	5.64
March 14 - April 4	10.33	9.69	9.62	5.17	6.39	6.06	5.78
April 11	10.56	9.85	9.78	5.28	6.53	6.17	5.88
April 18	10.64	9.93	9.86	5.32	6.58	6.22	5.93
April 25 - May 2	11.17	10.36	10.28	5.59	6.91	6.49	6.19
May 9 - May 16	11.41	10.69	10.60	5.71	7.05	6.69	6.37
May 23	11.60	10.83	10.74	5.80	7.17	6.78	6.46
May 30	11.91	11.09	11.00	5.96	7.36	6.94	6.62
June 6 - June 20	12.20	11.33	11.24	6.10	7.54	7.10	6.76
June 27	13.20	12.07	11.98	6.60	8.16	7.57	7.22
July 5	13.78	12.79	12.69	6.89	8.51	8.01	7.64
July 11 - August 1	14.41	13.39	13.30	7.21	8.91	8.39	8.00
August 8	14.15	12.91	12.82	7.07	8.74	8.10	7.73
August 15	13.00	11.82	11.74	6.50	8.04	7.42	7.08
August 22 - September 5	12.46	11.23	11.11	6.23	7.70	7.02	6.76
September 12	12.23	11.08	10.96	6.12	7.56	6.92	6.68
September 19 - October 10	11.74	10.57	10.45	5.87	7.26	6.61	6.38
October 17 - October 24	11.43	10.29	10.17	5.72	7.07	6.43	6.21
October 31	10.55	9.67	9.55	5.27	6.52	6.03	5.81
November 7 - November 14	10.16	9.37	9.25	5.08	6.28	5.84	5.63
November 21 - December 26	9.76	9.06	8.94	4.88	6.03	5.64	5.43
1990:							
January 2 - February 13	9.76	9.06	8.94	4.88	6.03	5.64	5.43
February 20	9.54	8.70	8.59	4.77	5.90	5.43	5.23
February 27-March 27	9.41	8.46	8.35	4.70	5.81	5.29	5.10
April 3 - April 17	9.31	8.25	8.14	4.66	5.75	5.17	4.98
April 24	9.11	8.10	7.99	4.56	5.63	5.07	4.89
May 1	8.87	7.95	7.84	4.43	5.48	4.97	4.79
May 8 - May 22	8.63	7.77	7.66	4.32	5.34	4.86	4.68
May 29	8.53	7.66	7.60	4.26	5.36	4.93	4.91
June 5 - June 19	8.45	7.58	7.52	4.22	5.31	4.88	4.86
June 26 - August 7	8.36	7.48	7.41	4.18	5.25	4.82	4.79
August 14 - August 21	8.31	7.38	7.31	4.16	5.22	4.75	4.73
August 28 - September 25	8.18	7.22	7.16	4.09	5.14	4.65	4.63
October 2 - December 18	8.28	7.32	7.27	4.14	5.20	4.72	4.70
1991:							
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
1992:							
January 21 - January 28	9.81	8.82	8.76	4.91	6.05	5.57	5.21
February 4 - March 24	9.98	9.03	8.95	4.99	6.15	5.70	5.32
March 31 - May 5	9.62	8.70	8.57	4.81	5.93	5.49	5.10
May 12	9.43	8.46	8.32	4.71	5.81	5.34	4.96

1/ Repayment rates for 1985-crop loans are the world price for the specified class of rice. Repayment rates 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 1989-1992 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	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92
						$/cwt					
Month:											
August	11.80	7.31	8.41	8.22	7.86	4.02	3.82	7.49	7.41	6.66	7.16
September	10.70	7.75	8.48	8.17	7.55	3.86	4.34	6.97	7.59	6.21	7.67
October	10.20	7.73	8.80	8.08	7.73	3.83	6.25	6.85	7.41	5.95	7.61
November	9.86	7.78	8.80	8.13	7.84	3.90	7.53	6.81	7.03	6.21	7.78
December	9.34	8.06	8.66	8.08	7.71	3.74	7.64	6.68	7.05	6.12	7.92
January	9.34	8.05	8.57	8.09	7.90	3.55	7.93	6.58	7.44	6.38	7.77
February	9.46	8.26	8.85	7.72	7.86	3.84	9.37	6.67	7.57	6.69	7.91
March	8.99	7.99	8.63	8.17	7.60	3.62	9.22	6.60	7.55	7.07	7.72
April	8.54	8.23	8.49	8.20	5.32	3.63	8.92	6.74	7.41	7.43	7.39
May	8.55	8.23	8.24	7.91	4.52	3.71	7.97	6.78	7.28	7.45	7.11
June	8.54	7.88	8.20	7.83	4.04	3.62	7.69	7.05	7.18	7.43	4/ 7.03
July	8.25	7.95	8.18	7.54	3.86	3.49	7.94	7.45	7.05	7.18	
Season average price:											
12 months 1/	9.05	7.91	8.57	8.04	6.53	3.75	7.27	6.83	7.35	6.70	4/ 7.50-7.55
5 months 2/	10.40	7.69	8.63	8.14	7.73	3.87	5.71	6.84	7.24	6.25	7.64
State: 3/											
Arkansas	9.37	8.61	9.18	8.51	6.70	3.68	7.60	6.90	7.46	6.75	NA
California	7.35	6.65	6.96	6.43	5.33	3.18	6.72	6.15	6.27	5.93	NA
Louisiana	9.36	8.05	8.90	8.20	7.24	4.03	7.65	6.90	7.81	6.73	NA
Mississippi	9.14	8.66	9.53	8.88	7.10	3.91	7.90	7.02	7.57	6.99	NA
Missouri	9.50	8.65	9.49	8.70	7.05	3.57	7.41	7.22	7.54	7.21	NA
Texas	10.40	8.94	9.97	8.90	7.38	4.22	8.07	7.24	8.02	7.41	NA
Type:											
Long grain	9.70	8.56	9.36	8.66	6.75	3.82	7.77	6.96	7.59	6.94	NA
Medium and short grain	8.06	6.91	7.13	6.66	5.87	3.55	6.36	6.47	6.71	6.19	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/ Estimated.

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							
Long 2/:						Southwest Louisiana							
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	15.05		
						Houston, Texas							
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	16.65		
						Arkansas							
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		
Medium 2/:						Southwest Louisiana							
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		
						Arkansas							
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		
Medium 3/:						California							
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	18.40		
Short 3/:													
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		

1/ June 1992 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:													
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		
Rice bran, f.o.b. mills:							$/ton 3/						
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		
Rice millfeed, f.o.b. mills:							$/ton 3/						
1981/82	22.60	10.90	17.75	22.00	30.65	29.75	16.50	13.15	13.40	15.40	19.40	NQ	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	14.90		

NQ = Not quoted.
1/ June 1992 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	July	Simple average
							$/cwt						
Arkansas: 1/													
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		
New York: 2/													
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	11.51	11.56	11.81		

June 1992 data are preliminary.

Sources: 1/ Rice Market News, Agricultural Marketing Service, USDA.
2/ Milling and Baking News.

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

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

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 C & F ARAG quotations 1/

Type	1985/86	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92 3/
				$/metric ton			
U.S. no. 2 milled, 4%, container, FAS:							
August	477	299	316	325	354	306	364
September	475	285	349	303	357	287	373
October	475	305	NQ	303	324	284	379
November	475	303	415	310	314	314	381
December	470	249	413	300	312	325	380
January	454	224	442	292	338	333	379
February	455	224	496	290	356	349	378
March	455	224	493	290	348	364	363
April	383	224	455	292	342	372	343
May	325	240	420	317	338	380	333
June	291	267	329	356	336	389	314
July	286	277	355	368	333	378	
Average	418	260	408	312	338	340	
Thai SWR 100% Grade A, bulk 2/:							
August	265	303	300	380	448	401	415
September	264	297	312	380	433	395	413
October	283	292	349	378	407	402	401
November	310	275	341	375	384	395	388
December	290	260	338	375	376	400	382
January	290	260	365	360	379	418	379
February	270	262	395	360	395	439	385
March	269	276	396	360	394	428	388
April	258	282	383	365	371	398	397
May	255	275	377	400	379	398	399
June	280	273	366	412	396	391	402
July	283	268	383	437	399	395	
Average	276	279	359	382	397	405	
Thai SWR 100% Grade B, bulk 2/:							
August	237	243	250	322	386	311	357
September	239	230	280	320	369	310	341
October	239	225	316	320	359	330	323
November	260	219	303	320	331	321	320
December	245	215	304	320	322	304	319
January	240	218	328	315	328	359	322
February	235	236	357	320	350	386	325
March	234	244	359	325	343	365	326
April	223	246	340	328	326	335	325
May	222	241	340	360	309	344	327
June	229	238	311	389	308	347	320
July	230	235	324	402	307	350	
Average	236	232	318	337	336	339	

NQ = Not quoted.
1/ ARAG = composite of ports near Rotterdam.
2/ Thailand prices changed to bulk quote on May 15, 1985. Prior to this date Thai prices were quoted by the bag.
3/ June 1992 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/-- Rough	Milled	Exports 3/	Total use 4/	Ending stocks 5/	Stocks-to-use ratio 6/
	Million hectares	Mt/ha	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	2.05	254.0	173.2	7.9	172.5	18.0	10.4
1966/67	125.7	2.09	262.4	179.3	7.8	178.7	18.6	10.4
1967/68	127.0	2.19	277.5	189.3	7.2	187.0	20.9	11.2
1968/69	128.7	2.23	286.7	195.4	7.5	191.6	24.8	12.9
1969/70	131.5	2.25	295.8	201.5	8.2	200.1	26.1	13.1
1970/71	132.7	2.36	313.2	213.5	8.6	210.9	28.8	13.7
1971/72	134.9	2.35	317.4	216.3	8.7	216.7	28.4	13.1
1972/73	132.7	2.32	307.3	209.6	8.4	214.6	23.4	10.9
1973/74	136.4	2.45	334.7	228.2	7.7	223.0	28.5	12.8
1974/75	137.9	2.41	332.1	226.3	7.3	226.7	28.2	12.4
1975/76	143.0	2.51	358.5	243.9	8.4	233.2	38.9	16.7
1976/77	141.5	2.46	348.3	236.8	10.6	237.9	37.8	15.9
1977/78	143.6	2.58	370.5	251.8	9.6	245.7	43.9	17.9
1978/79	143.8	2.69	387.2	263.6	11.9	253.4	54.1	21.4
1979/80	141.4	2.68	378.5	258.2	12.6	259.5	52.8	20.3
1980/81	144.3	2.77	399.0	271.1	13.1	276.0	48.0	17.4
1981/82	145.0	2.85	413.1	280.9	11.8	284.9	44.0	15.4
1982/83	140.5	3.00	421.5	287.1	11.9	287.2	43.8	15.3
1983/84	144.3	3.14	453.2	308.4	12.3	305.0	47.2	15.5
1984/85	144.2	3.25	468.7	319.2	11.3	310.5	56.0	18.0
1985/86	145.0	3.23	468.8	319.0	12.6	319.6	55.4	17.3
1986/87	145.3	3.22	467.7	318.2	12.9	322.2	51.4	16.0
1987/88	141.9	3.29	466.2	316.1	11.9	321.5	46.0	14.3
1988/89	145.6	3.37	490.0	331.8	15.1	329.5	48.3	14.7
1989/90	147.0	3.46	508.5	344.4	12.0	337.7	55.0	16.3
1990/91	147.1	3.53	519.7	352.1	12.5	347.7	59.4	17.1
1991/92 7/	145.9	3.51	512.3	347.0	13.3	352.6	53.8	15.2
1992/93 8/	NA	NA	519.1	351.4	13.3	354.3	50.9	14.4

NA = Not available.
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. 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 1992.

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 (as of July 1992)
	Million metric tons							
Production:								
Bangladesh	22.6	23.1	23.1	23.3	26.8	26.8	27.6	27.9
Burma	11.5	11.8	11.4	12.5	13.5	13.7	12.8	13.0
China	168.6	172.2	173.9	169.1	180.1	189.3	183.8	185.0
India	95.7	90.6	85.3	105.7	110.4	111.9	106.5	109.5
Indonesia	39.0	39.0	41.5	42.3	44.7	45.2	44.1	45.2
Japan	14.6	14.6	13.3	12.4	12.9	13.1	12.0	13.5
South Korea	7.9	7.9	7.6	8.4	8.1	7.7	7.4	7.3
Pakistan	4.4	5.2	4.9	4.8	4.8	4.9	4.8	4.8
Thailand	20.3	18.9	18.4	21.3	20.2	17.2	20.3	20.0
Subtotal	384.6	383.3	379.4	399.8	421.5	429.8	419.3	426.2
Australia	0.7	0.6	0.8	0.8	0.8	0.8	0.9	1.0
Brazil	9.8	10.6	11.8	11.0	7.2	9.5	10.8	10.5
EC-12	2.0	1.9	1.9	2.0	2.1	2.4	2.2	2.1
All others	65.5	65.2	66.4	69.1	69.9	70.1	71.2	71.8
Total non-U.S.	462.6	461.6	460.3	482.7	501.5	512.6	504.4	511.6
United States	6.1	6.0	5.9	7.3	7.0	7.1	7.0	7.5
World total	468.8	467.7	466.2	490.0	508.5	519.7	511.4	519.1
Ending stocks 3/:								
Total foreign	52.9	49.7	45.0	47.4	54.1	58.6	52.8	49.8
United States	2.5	1.7	1.0	0.9	0.9	0.8	1.0	1.1
World total	55.4	51.4	46.0	48.3	55.0	59.4	53.8	50.9

1/ Production is rough basis, but ending stocks are milled basis. 2/ World rice harvest stretches over 6-8 months. Thus, crop year represents the crop harvested in late 1990 and early 1991 in the Northern Hemisphere and the crop harvested in early 1991 in the Southern Hemisphere. 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.

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 1/	1993 2/ (as of July 1992)
Exports:							
United States	2,444	2,241	2,967	2,420	2,197	2,200	2,300
Argentina	150	160	130	70	125	175	175
Australia	338	417	450	470	400	450	500
Burma	493	368	456	186	300	200	200
China	1,020	698	320	300	689	750	700
Taiwan	240	104	68	50	200	200	200
EC-12	981	920	963	990	1,090	1,040	900
Egypt	105	108	100	32	85	160	170
Guyana	69	56	26	30	53	55	75
India	350	200	450	420	500	400	450
Indonesia	100	0	104	50	0	0	0
North Korea	154	199	175	75	0	0	0
Pakistan	1,226	950	779	904	1,297	1,200	1,200
Thailand	4,355	4,791	6,036	3,937	3,993	4,600	4,400
Uruguay	190	244	251	250	262	300	350
Vietnam	153	97	1,400	1,500	1,000	1,200	1,200
Other	560	355	419	350	358	412	452
World total	12,928	11,908	15,094	12,034	12,549	13,342	13,272
Imports:							
Bangladesh	746	187	400	100	50	50	15
Brazil	200	64	180	405	800	350	350
Canada	85	135	148	130	160	170	180
China	554	310	1,200	142	142	100	100
Cuba	150	200	200	200	150	150	150
Eastern Europe	320	290	273	261	276	300	300
EC-12	1,198	1,215	1,261	1,235	1,250	1,270	1,230
India	5	650	500	0	0	0	0
Indonesia	155	33	412	60	180	600	50
Iran	1,000	400	1,000	850	565	800	800
Iraq	524	603	542	360	250	300	500
Ivory Coast	445	212	305	310	325	350	325
North Korea	0	0	0	0	200	200	200
Kuwait	90	90	90	90	90	90	100
Madagascar	125	70	130	155	60	100	100
Malaysia	280	350	360	360	400	380	400
Mexico	0	0	189	130	175	250	250
Nigeria	400	240	300	220	210	270	200
Peru	211	17	162	246	300	400	450
Philippines	0	181	195	630	0	0	0
Saudi Arabia	500	431	525	525	525	550	525
Senegal	355	360	400	390	430	400	400
South Africa	268	237	280	300	346	375	350
Sri Lanka	102	180	292	132	133	220	250
Syria	120	120	140	140	135	140	140
Turkey	110	170	200	210	200	250	250
U.A. Emirates	222	220	300	335	200	220	250
Former USSR	598	498	600	400	400	800	825
Vietnam	344	175	50	0	0	0	0
Other	3,436	3,855	3,845	3,592	3,800	3,801	3,882
Unaccounted 3/	385	415	615	126	797	456	700
World total	12,928	11,908	15,094	12,034	12,549	13,342	13,272

1/ Forecast. 2/ Projected. 3/ This represents exports not accounted for in reports from importing countries. Because this is recurring, it is taken into account in the assessment of the year ahead.

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

Appendix table 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	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	23.6	1.6
1980/81	1.8	23.0	1.1
1981/82	2.1	21.1	3.6
1982/83	1.7	19.6	5.3
1983/84	1.0	17.3	3.1
1984/85	1.4	16.9	3.7
1985/86	1.4	19.0	4.5
1986/87	1.4	18.9	3.2
1987/88	1.3	18.8	2.2
1988/89	1.6	19.7	1.8
1989/90	1.5	20.1	1.6
1990/91	1.4	17.5	1.4
1991/92 2/	1.5	16.5	1.9
1992/93 3/	1.5	17.3	2.1

1/ Based on aggregate of differing local marketing years except for exports which are on a calendar year.
2/ Estimated. 3/ 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 to world consumption	World ending stocks to world consumption	U.S. exports to foreign 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	12.9	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	12.4	0.9
1975/76	3.6	16.7	0.9
1976/77	4.5	15.9	1.0
1977/78	3.9	17.9	0.9
1978/79	4.7	21.4	0.9
1979/80	4.9	20.4	1.1
1980/81	4.7	17.4	1.1
1981/82	4.1	15.4	0.9
1982/83	4.1	15.3	0.8
1983/84	4.0	15.5	0.7
1984/85	3.6	18.0	0.6
1985/86	3.9	17.3	0.8
1986/87	4.0	16.0	0.8
1987/88	3.7	14.3	0.7
1988/89	4.6	14.7	0.9
1989/90	3.6	16.3	0.7
1990/91	3.6	17.1	0.6
1991/92 2/	3.8	15.2	0.6
1992/93 3/	3.7	14.4	0.6

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 2/	Brown	Parboiled	Rough	Brokens	Total
			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	1,421.6	319.5	834.4	127.3	81.4	2,784.2
1989/90	1,164.8	311.4	948.6	51.3	65.3	2,541.4

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	Exports outside specified export programs	Total U.S. rice exports	Export programs as a share of total exports
				1,000 metric tons					Percent
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	3/ 180	0	3/ 1,116	3/ 856	1,972	3/ 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 3/	350	0	663	0	0	1,013	1,484	2,497	41
1991 4/	411	0	183	0	76	670	1,748	2,418	28

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 calculated from Foreign Agricultural Service Press Releases. 3/ Estimated. 4/ Preliminary.

Sources: Agricultural Stabilization and Conservation Service, and Foreign Agricultural Service, USDA.
Table provided by Mark Smith, ERS-CED, (202) 219-0821.

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