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# Rice

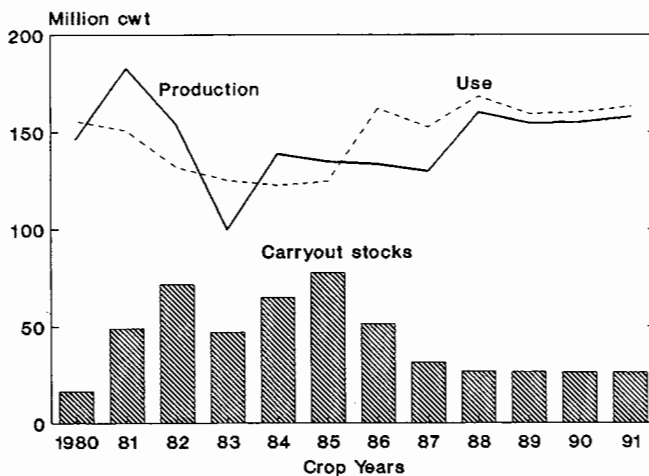
## Situation and Outlook Yearbook

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U.S. Rice Production, Use, and Stocks





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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. 1991 rice production is forecast to increase 1.7 percent from a year earlier to 157.5 million cwt. This gain is caused by a projected rise in harvested acreage and a likely increase in yields.

USDA's June acreage report indicated that U.S. rice producers plan to harvest 2.83 million acres in 1991, 18,000 acres more than in 1990. All of this increase is expected to occur in Arkansas and Missouri, offsetting reductions in California, Louisiana, Mississippi, and Texas. Last year, harvested acreage in Arkansas and Missouri was held down because heavy winds and rain caused some lodging.

The results of USDA's first survey-based yield forecast for the 1991 crop will be available in August. USDA's weather bulletin rated the 1991 rice crop, as of July 14, to be 4 percent in excellent condition, 65 percent good, and 30 percent fair, about the same as a year ago. However, last year unfavorable weather at harvest reduced yields. Assuming normal weather through harvest, this year's rice crop in Northeast and Central Arkansas, where most of the crop is grown, is expected to be better than last year's rain-damaged crop. Also, the potential for a good ratoon crop in Texas is better than a year ago, because planting of the first crop was not delayed in the western region where ratoon cropping is practiced. However, areas in Mississippi, Louisiana, and eastern Texas where rice planting was delayed because of persistent rainfall could suffer some yield loss.

U.S. rice supplies are forecast to increase 3.2 million cwt in 1991/92 because of the forecast production increase. Imports are projected to continue trending upward, adding 5.5 million cwt to domestic supplies in 1991/92.

Food use for 1991/92 is forecast up 6 percent, based on trend increases. USDA's biannual milled-rice distribution survey for marketing year 1988/89 was completed in early 1991. Overall survey results indicated that total and per capita consumption in the United States continued to rise. The growth in use of certain processed foods and some specialty rices was substantially greater than overall growth.

U.S. rice exports in 1991/92 are forecast at 70 million cwt, down slightly from 1990/91. Strong competition and relatively tight U.S. supplies are likely to constrain exports, particularly in the last half of the marketing year. Continued strong demand from Latin America will help maintain U.S. market share, as will the continued use of government programs, including the Export Enhancement Program, credit guarantees, and food aid.

Carryout stocks for 1991/92 are forecast to remain at 26.2 million cwt, the same as last year. This would be the fourth consecutive marketing year that carryout stocks would be below 27 million cwt and the stocks-to-use ratio below 17 percent.

U.S. farm prices are currently forecast to range between \$6.00 and \$8.00 per cwt in 1991/92, compared with an estimated range of \$6.50 to \$7.00 for the current marketing year, and \$7.35 in 1989/90. If world prices remain near 1990/91 levels and U.S. supplies stay tight, the differential between global and domestic prices will remain high, contributing to a continued weak outlook for U.S. exports.

World rice production in 1991/92 is forecast at 344 million tons (milled), down 1 percent from the previous year, with the largest declines expected in China and India where record yields boosted supplies in 1990/91. World consumption is also projected down marginally. World trade in calendar 1992 is projected up 2 percent from 1991 to 12.9 million tons. Ending stocks and the stocks-to-use ratio are projected down slightly.

Foreign rice exports are projected up 3 percent to 10.6 million tons, with the largest gains expected in Thailand. U.S. exports in calendar 1992 are projected at 2.3 million tons, down 4 percent from 1991 and market share is projected to decline from a forecast 19 percent in 1991 to 18 percent in 1992.

## U.S. Rice Outlook for 1991/92

### U.S. Production Expected Up Slightly

U.S. 1991 rice production is forecast to increase 1.7 percent from a year earlier to 157.5 million cwt. This gain is caused by a projected rise in harvested acreage and a likely increase in yields.

USDA's June acreage report indicated that U.S. rice producers plan to harvest 2.83 million acres in 1991, 18,000 acres more than in 1990. All of the harvested acreage increase is expected to occur in Arkansas and Missouri, offsetting reductions in California, Louisiana, Mississippi, and Texas. Last year, harvested acreage in Arkansas and Missouri was held down because heavy winds and rain caused some lodging.

Whereas 1991 harvested acreage is estimated to be higher than a year ago, planted acreage is expected to be down 17,000 acres from 1990 to 2.87 million acres. The lower planted acreage largely reflects the reduced availability of irrigation water in California due to the prolonged drought. In the Delta, plantings may have been constrained by rotations necessary to combat disease and control red rice. However, the reduced plantings can also indicate that many producers feel market prices will not be strong enough to cover production costs on acreage that is not under target price protection. Although the acreage reduction program was reduced from 20 percent in 1990 to 5 percent in 1991, maximum acres for deficiency payments remained at 80 percent. The new farm legislation, which took effect this year, designates 15 percent of rice base acreage as normal flexible (flex) acres. Deficiency payments are not paid on normal flex acres. The preliminary program enrollment report shows that 9 percent of enrolled base flexed out of rice. This indicates that rice

farmers are interested in using their planting flexibility. However, some flexible acres are remaining in rice. In addition, the preliminary program enrollment report indicates that about 32 percent of enrolled base has been registered under the 50/92 program.

Of the four states reporting acreage reductions, California rice acreage showed the sharpest decline, falling 18 percent. The reduced availability of irrigation water held down acreage. In the Delta region, heavy rainfall severely delayed planting, particularly in Mississippi, Northeast Louisiana, Southeast Arkansas, and East Texas. Some farmers in those areas have enrolled in the 50/92 program and have applied for "prevented planted" credit eligibility for additional 50/92 acreage.

Long-grain seeded area was up 9,000 acres, with acreage increases in Arkansas and Missouri more than offsetting reductions in other states. Medium-grain planted acreage was down 13,000 acres. Medium-grain area increases in Arkansas and Louisiana offset 75 percent of the medium-grain reduction in California. Short-grain acreage continued to diminish, falling 54 percent to 11,000 acres. California grows virtually all short grain rice and the major market is Puerto Rico. Medium grain producers in Louisiana and Arkansas have recently taken over this market because transportation is cheaper than from California and Puerto Rican markets are willing to switch from short-grain to medium-grain rice.

The results of USDA's first survey-based yield forecast for the 1991 crop will be available in August. USDA's weather bulletin rated the 1991 rice crop, as of July 14, to be 4 percent in excellent condition, 65 percent good, and 30 percent fair, about the same as a year ago. However, last year unfavorable weather at harvest reduced yields. Assuming normal weather through harvest, this year's rice crop in Northeast and Central Arkansas, where most of the crop is grown, is expected to be better than last year's rain-damaged crop. Also, the potential for a good ratoon crop in Texas is better than a year ago, because planting of the first crop was not delayed in the western region where ratoon cropping is practiced. However, areas in Mississippi, Louisiana, and eastern Texas where planting was delayed because of persistent rainfall could suffer some yield loss.

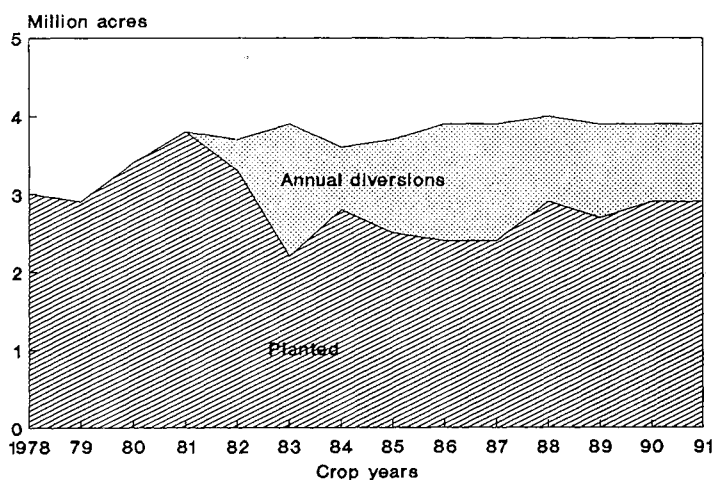
### Supplies Forecast Above Last Year's

U.S. rice supplies are forecast to increase 3.2 million cwt in 1991/92 because of the forecast production increase. Imports are projected to continue trending upward, adding 5.5 million cwt to domestic supplies in 1991/92.

### Domestic Use Continues Strong

Food use for 1991/92 is forecast up 6 percent, based on trend increases. USDA's biannual milled-rice distribution survey

Figure 1  
Rice Acres



for marketing year 1988/89 was completed in early 1991. Overall survey results indicated that total and per capita consumption in the United States has continued to rise. The growth in use of certain processed foods and some specialty rices was substantially greater than overall growth. (See "Domestic Rice Consumption Patterns, 1988/89" in this issue.)

### Exports Forecast Lower in 1991/92

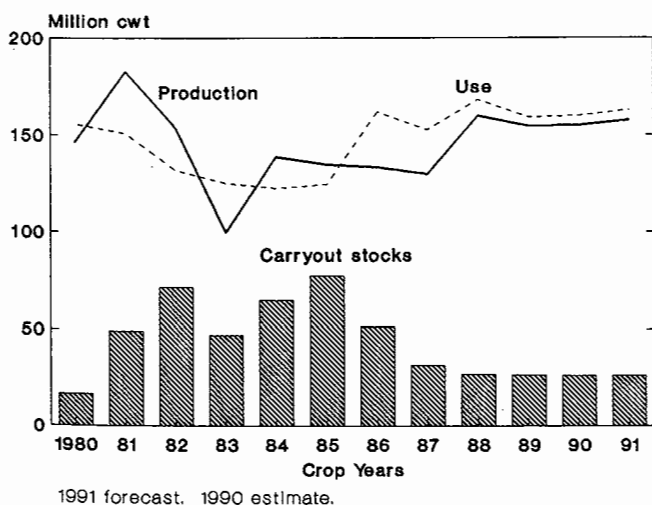
U.S. rice exports in 1991/92 are forecast at 70 million cwt, down slightly from 1990/91. Strong competition and relatively tight U.S. supplies are likely to constrain exports, particularly in the last half of the marketing year. Continued strong demand from Latin America will help maintain U.S. market share, as will the continued use of government programs, including the Export Enhancement Program (EEP), credit guarantees, and food aid.

### Stocks Remain Tight

Carryout stocks for 1991/92 are forecast to remain at 26.2 million cwt, the same as last year's estimate. This would be the fourth consecutive marketing year that carryout stocks would be below 27 million cwt and the stocks-to-use ratio below 17 percent.

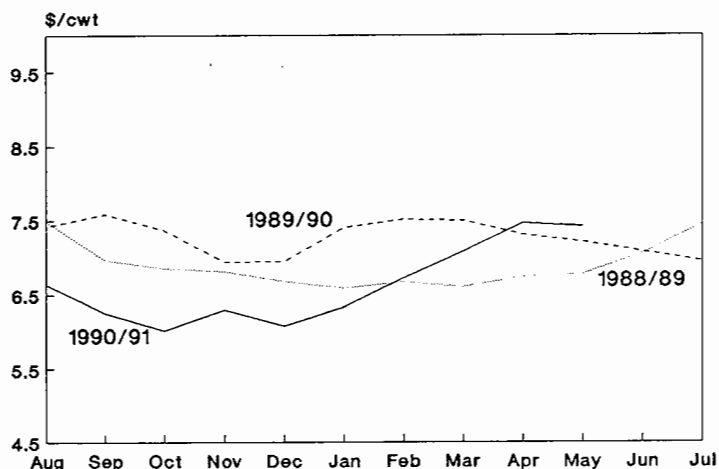
For the sixth consecutive year, U.S. rice production at 157.5 million cwt is expected to fall short of use. Production since 1988/89 has averaged 157 million cwt, while use has averaged 163 million. U.S. output has leveled off in recent years because growth in acreage and yields have slowed due to less irrigation water, disease-preventing crop rotations, and weak rice prices relative to production costs. While production has leveled off, domestic use continues to show strong growth. Exports make up the balance of total use,

Figure 2  
U.S. Rice Production, Use, and Stocks



1991 forecast. 1990 estimate.

Figure 3  
Monthly U.S. Rough Rice Prices



however, they have been constrained because of tight U.S. supplies and high prices relative to Asian competitors.

### U.S. Prices Forecast Slightly Higher Than a Year Ago

U.S. rice farm prices are currently forecast to range between \$6.00 and \$8.00 per cwt in 1991/92, compared with an estimated range of \$6.50 to \$7.00 for the current marketing year, and \$7.35 in 1989/90. If world prices remain near 1990/91 levels and U.S. supplies stay tight, the differential between global and domestic prices will remain high, contributing to a continued weak outlook for U.S. exports.

### Rice Market Pressures To Continue

U.S. rice export markets are expected to be limited by available supply well into the 1990's. U.S. rice acreage will likely continue to be switched to other crops due in part to the flexibility provisions of the 1990 farm legislation. Also, rice yields in recent years appear to have leveled off. While production increases appear to be limited, domestic demand is expected to show continued strong growth. Domestic processors are aggressively promoting rice as a healthy, versatile food and introducing new rice products that are easy to prepare. The multitude of new products are increasing consumers' options and encouraging more frequent use of rice. Rice use in processed foods such as cereal and snack foods continues to grow. In addition, the ethnic blend of the U.S. population is showing continued growth in the Hispanic and Asian segments. Per capita consumption of rice by these ethnic groups far exceeds the U.S. average.

Minimal growth in supply, combined with strong growth in domestic use, puts continued upward pressure on U.S. prices as domestic processors bid against each other for the available supply. U.S. exports, which are choked off when U.S. prices move too high above world prices, cannot expand while rice supplies remain limited.

## International Rice Outlook for 1991/92

World rice production in 1991/92 is forecast at 344 million tons (milled), down 1 percent from 1990/91, with the largest declines expected in China and India where record yields boosted supplies in 1990/91. World consumption is also projected down marginally. World trade in calendar 1992 is projected up 2 percent from 1991 to 12.9 million tons. Ending stocks and the stocks-to-use ratio are forecast down slightly.

Asia, which accounts for over 90 percent of the world's rice, production and consumption, is projected to produce 316 million tons, down 2 percent from 1990/91, assuming normal weather. However, it is very early in the season. The monsoon rain in South Asia has just begun and planting for 1991/92 in several Southeast Asian countries, such as Thailand, Burma, and Vietnam, has not been completed.

China, which usually produces one-third of the world's rice is projected to reduce area slightly and yields are projected to decline from the 1990/91 record. Production in 1991/92 is projected at 126 million tons, 3 percent below 1990/91. China has been experiencing a long-term decline in rice area as farmers move land into housing, rural industries, and more profitable crops. However, despite a record crop in 1990/91, which led to low farm prices, and inadequate storage for surplus grain, the government is exerting administrative pressure on farmers to keep area planted to rice. The continuing spread of hybrid seed technology is expected to keep yields high, but not match the 1990/91 record.

India's 1991 monsoon rain began forcefully, favoring good rice production in the rain-fed eastern part of the country. However, the monsoon rains stalled before reaching the northwest where about 25 percent of India's rice is grown. Recently, intermittent rains and cooler temperatures have brought some relief. But, while most of this rice is irrigated, some is not and more rain will be needed to ensure full yield potential. In addition, severe foreign exchange constraints have restricted fertilizer imports, which might also contribute to a reduction in yield from the 1990/91 record. Production is forecast at 73 million tons, down 3 percent from 1990/91. Despite this production decline, India will be entering the new year with record carry-in stocks. As a result, India is expected to remain a net exporter in calendar 1992.

The severe cyclone in Bangladesh will not have a major impact on 1991/92 rice production. About 300,000 tons of the 1990/91 rice crop was lost, but only a small percentage of the affected area had been planted to new crop rice. Rice production in 1991/92 is projected at 18 million tons, up slightly from 1990/91 due to increased yields. The cyclone damage and the resulting flooding, salinity, loss of inputs,

animal traction, and manpower, is estimated to have led to a loss of 60,000 tons of new crop rice. Lower priced wheat, rather than rice imports, are forecast up in 1991/92 to meet the needs of cyclone victims. Rice consumption is projected down, with calendar 1992 rice imports projected to match 1991 at 100,000 tons.

In the Philippines, rice production is forecast to rise 3 percent because of a projected increase in area as farmers respond to higher government procurement prices. However, recent dry weather in northern and central Luzon is creating some uncertainty about yields. Consumption is expected to outstrip domestic production and calendar 1992 imports are projected up 20 percent from 1991 at 300,000 tons. Most of the 1990/91 dry season crop had already been harvested when the volcano erupted. While up to 20,000 hectares of rice area have been affected, a total of 3.6 million

Figure 4  
Foreign Rice Area

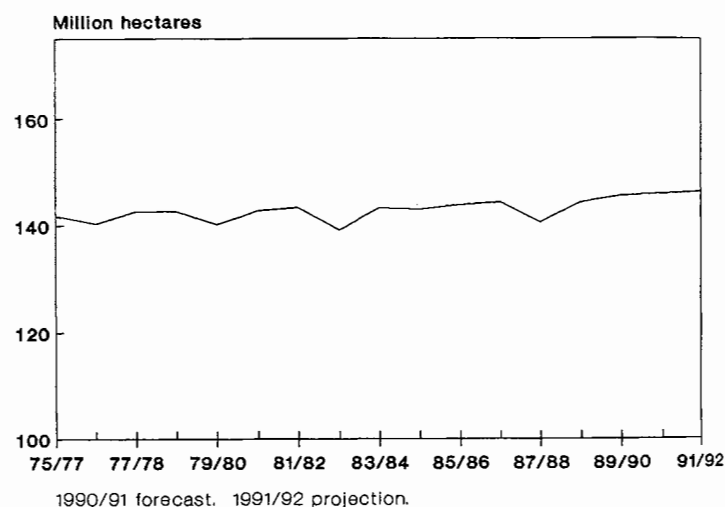


Figure 5  
Foreign Rice Yields

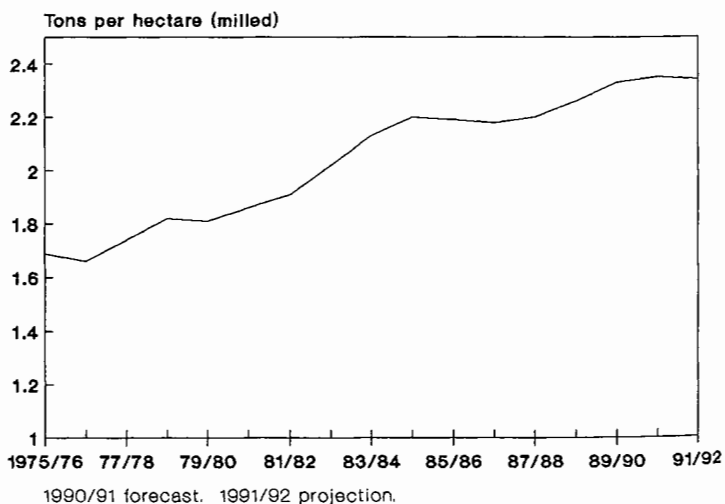


Figure 6  
Foreign Rice Production and Consumption

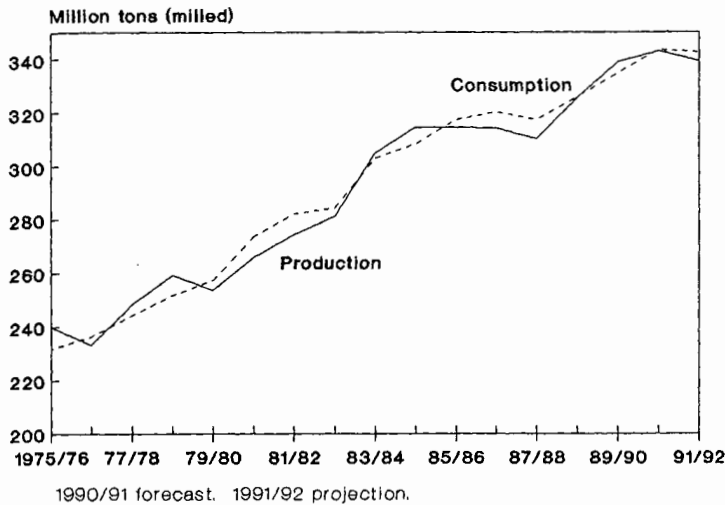
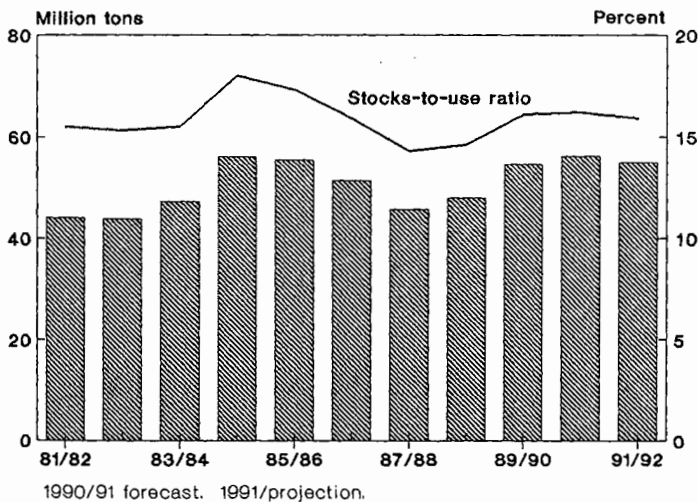


Figure 7  
World Stocks and Stocks-to-Use Ratio



hectares are projected to be harvested in 1991/92 and new crop production losses are expected to be minimal.

Indonesia's 1991/92 production is projected at 29 million tons, down slightly from the 1990/91 record because of dry conditions in northern Java. Irrigation supplies appear adequate but some rain-fed area is being adversely affected. Imports are forecast down by a third at 200,000 tons as the government reduces its role in rice procurement, marketing, and storage.

#### East Asian Production Continues High as Consumption Falls

Japan's 1991/92 rice production is projected at 9.4 million tons, down slightly from the 1990/91 bumper crop. Producer prices have been declining since 1987, but farm prices remain well above the world rice price. Retail prices have

also been reduced to slow the consumption decline, but consumption is falling faster than production, leaving ending stocks above the government's target of 900,000 tons.

South Korea's 1991/92 production is projected up 2 percent to 5.7 million tons as high farm price supports encourage production despite burdensome stock levels. South Korea is seeking new food uses of rice and has begun donating small quantities of rice to North Korea.

Taiwan's 1991/92 production is projected to decline marginally to 1.7 million tons as the rice land diversion program continues to move land out of rice production. Per capita consumption is falling at an even stronger pace than production and stocks remain high. To reduce stocks, Taiwan encourages the consumption of rice as feed and in processed food, and exports a growing percentage as donations.

#### Latin American Imports To Continue Strong

As in calendar 1991, Latin American countries are expected to be very active in the import market in calendar 1992. Brazil is the largest rice producer and consumer in Latin America. During the last two years, production has been curtailed by poor weather and reduced access to production credit. Unlike last year, irrigation supplies in southern Brazil are expected to be plentiful and area is expected to expand. However, access to production credit remains uncertain, likely affecting input use and reducing yields from 1990/91. While production is forecast at 10 million tons, 8 percent above 1990/91, stocks are relatively low. Calendar 1992 rice imports are projected at 500,000 tons, down 16 percent from 1991.

Peru's 1991/92 rice crop is projected at 450,000 tons, the lowest since 1986/87, a result of delayed credit and inadequate irrigation water. Calendar 1992 imports are forecast to match 1991 at 350,000 tons. Strong consumption in Venezuela is likely to stimulate imports. Retail price controls were recently relaxed, increasing the prospects for rice imports next year. Rice area in Mexico is expected to remain relatively low. While production is forecast up 35 percent to 270,000 tons, imports are projected at 200,000 tons for calendar 1992, matching the 1991 forecast.

#### Rice Projections Mixed For Other Regions

Middle Eastern imports are projected to nearly match those of calendar 1990 at 2.8 million tons. Imports into the Gulf countries are expected to remain strong. Iraq's imports are projected at 300,000 tons, up 50 percent from the calendar 1991 forecast, but still well below the pre-embargo levels.

In Sub-Saharan Africa, 1991/92 production is projected down 4 percent because of the late arrival of rains in Tanzania, Mozambique, and Madagascar. Imports into Sub-Saharan Africa are likely to remain about the same as

forecast 1991, with small increases expected in the Ivory Coast, Madagascar, and South Africa.

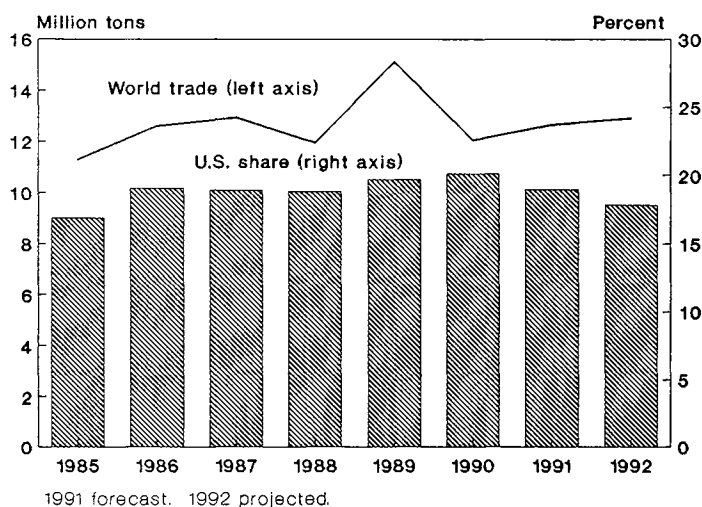
EC rice production in 1991/92 is projected down 4 percent due to reduced production in Italy. Imports are projected down 7 percent to 1 million tons. Production in Eastern Europe is projected down 5 percent, with imports up slightly to 310,000 tons.

### Foreign Exporters To Increase Market Share

Foreign rice exports are projected up 3 percent to 10.6 million tons, with the largest gains expected in Thailand. Foreign exporters' market share in calendar 1992 is expected to increase slightly to 82 percent as tight U.S. supplies restrict exports.

Figure 8

### World Rice Trade and U.S. Share



Thailand suffered a sharp, weather-related production decline in 1990/91. Farm prices are favorable and, assuming normal weather, production is projected to rebound to 13.2 million tons as area and yields return to normal. Exports are projected up 7 percent in calendar 1992 to 4.5 million tons.

Pakistan is projected to maintain its strong export pace in calendar 1992. Pakistan is encouraging production of non-basmati IRRI varieties and has increased exports, mostly to Sub-Saharan African countries. Price supports for 1991/92 have not been announced, but were raised substantially in 1990/91. Production is projected up 2 percent from 1990/91 to 3.2 million tons. Calendar 1992 exports are projected to match calendar 1991's 1.2 million tons.

Vietnam's calendar 1992 exports are projected to decline from 1991 to 800,000 tons. The government will likely continue to encourage exports while ensuring adequate domestic supplies. Fertilizer will probably continue to be in short supply as the Soviet Union reduces its support of Vietnam and foreign exchange continues to be scarce. Production in 1991/92 is projected to fall 3 percent from 1990/91 to 11.4 million tons because of a slight decline in area and a projected drop in yields.

China's exports in calendar 1992 are projected at 500,000 tons, 9 percent below calendar 1991. Relatively high stocks and the projected large crop gives China the opportunity to earn badly needed foreign exchange by exporting rice. Large supplies will likely keep imports low.

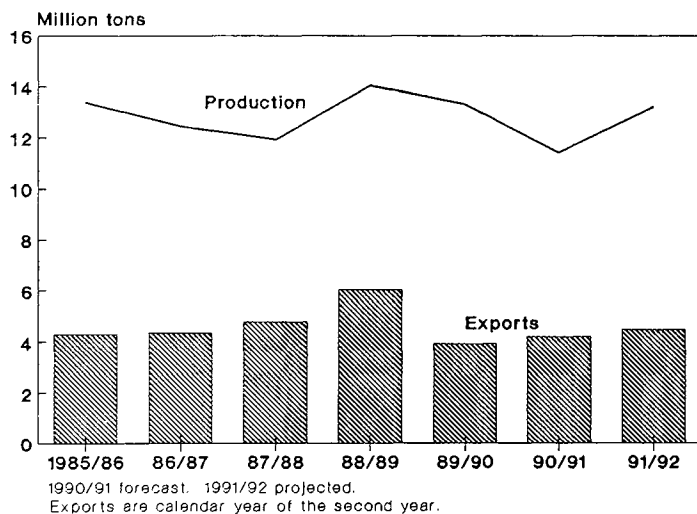
Burma's 1991/92 rice crop is not expected to match its 1990/91 bumper harvest. Production is forecast down 2 percent to 8 million tons. However, large carry-in stocks are likely to allow exports to increase to 500,000 tons, up 25 percent from the calendar 1991 forecast.

Australia's production is expected to increase 15 percent to 646,000 tons as world prices and export prospects improve. Calendar 1992 exports are projected up slightly to 500,000 tons.

U.S. exports in calendar 1992 are projected at 2.3 million tons, down 4 percent from calendar 1991. U.S. market share is projected to decline from the 19 percent forecast for 1991 to 18 percent in 1992. Tight U.S. supplies are likely to keep U.S. prices high relative to those of Asian exporters, especially in the first half of the calendar year. If prices are competitive, the United States will likely maintain its advantage in Latin American markets. The Export Enhancement Program (EEP) will remain an important tool to gain market share in Eastern Europe and Mediterranean countries, such as Turkey and Jordan. Credit guarantee and food aid programs will also help maintain sales, particularly to Africa.

Figure 9

### Thailand's Rice Production and Exports





## 1990/91 Rice Situation

In 1990/91, world rice production reached a record 348 million tons as favorable weather in China and India led to record yields and bumper harvests. Trade prospects are forecast to improve from 1990, especially because Latin American imports are expected to increase. Gains are forecast for Iran, Malaysia, Indonesia, and others.

World prices are relatively high, especially for high quality rice, because of tight supplies in the United States and Thailand. The low-quality market is being dominated by Pakistan and China, which are successfully competing with Vietnam and Thailand, particularly in Sub-Saharan Africa.

Thailand's 1990/91 crop is forecast at 11.4 million tons, the smallest since 1982/83. Unfavorable weather and pest infestations reduced yields and harvested area of the main season crop. Inadequate irrigation water supplies limited the small, but important, dry season harvest. Still, exports are forecast up 7 percent from calendar 1990 to 4.2 million tons.

As in 1990, the Thai Government has stepped in to stimulate exports and support farm prices. The government has begun to buy rice for stocks to shore up domestic paddy prices. In addition, early in 1991, Thailand released 280,000 tons of low-quality stocks to private exporters at very low prices. It was hoped that they would export the rice at prices competitive with those of Pakistan. Also, according to news sources, the government agreed to negotiate rice sales to Iraq, thereby relieving private exporters of additional credit risk from potential non-payment. Recently, news reports indicate that private exporters from Thailand sold 45,000 tons of rice to Iraq.

Pakistan's 1990/91 rice crop is estimated up slightly from 1989/90 and calendar 1991 exports are forecast to reach 1.2 million tons, up 33 percent from 1990. Pakistan has been competing aggressively for low quality markets in Sub-Saharan Africa, mainly at the expense of Vietnam, and basmati markets in the Middle East, at the expense of India.

Vietnam's calendar 1991 exports are forecast down 33 percent to 1 million tons. The crop was down slightly from 1989/90, but more importantly, the government is trying to ensure that adequate domestic supplies are available throughout the year. Last year, shortages in some parts of the country occurred, in part, because of the rapid pace of exports. This year, production in the northern provinces is down and more rice grown in the south is being shipped north instead of being exported. Exports from January through June were down 76 percent from the same time in 1990.

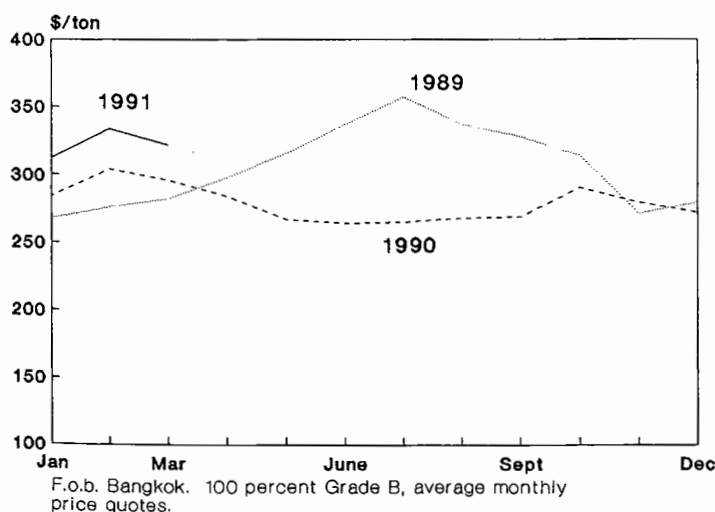
In addition, the government increased central control of rice exports by placing restrictions on provincial trading companies. However, the national agencies did not have the funds to procure enough rice to meet export demand. In April, the government lifted restrictions on the provincial traders and shipments are likely to pick up in the last half of the year.

Burma's export pace has increased significantly from the same time in 1990. Calendar 1991 exports are forecast at 400,000 tons. The government has procured more of the crop by offering higher prices than in 1989/90 and has marketed it more successfully, probably at the expense of Vietnam. However, about half of the 1991 forecast is likely to be exported out of the country unofficially.

China has also stepped up its export pace this year. China is forecast to export 550,000 tons in calendar 1991, up over 80 percent from 1990. China's record 1990/91 grain crop, prospects for another large harvest, and inadequate storage facilities are also stimulating exports. In the past, China has sold rice when prices were high to earn foreign exchange. While export prices for China's low quality rice are not particularly high, China is probably trying to reduce surplus supplies and earn foreign exchange.

U.S. rice exports in calendar 1991 are forecast to remain largely unchanged from 1990 at 2.4 million tons in calendar 1991. Tight supplies and relatively high export prices are keeping the U.S. export pace down. According to U.S. census data and USDA's Export Sales Report, exports during the first half of calendar 1991 are down 7 percent from the same time in 1990. Exports are expected to pick up in the last half of the year in response to import needs in Latin America.

Figure 10  
Rice Export Prices



### U.S. Exports Down in 1990/91 Marketing Year

U.S. exports in 1990/91 are forecast at 71 million cwt., down 8 percent from 1989/90. According to census data through May and USDA's Export Sales Report, exports through June are down 6 percent. The export pace has slowed sharply since January because of tight supplies and relatively high prices and is unlikely to recover before August.

The embargo on Iraq severely affected U.S. rice exports to the Middle East. However, exports to Latin America are up primarily because of strong exports to Brazil.

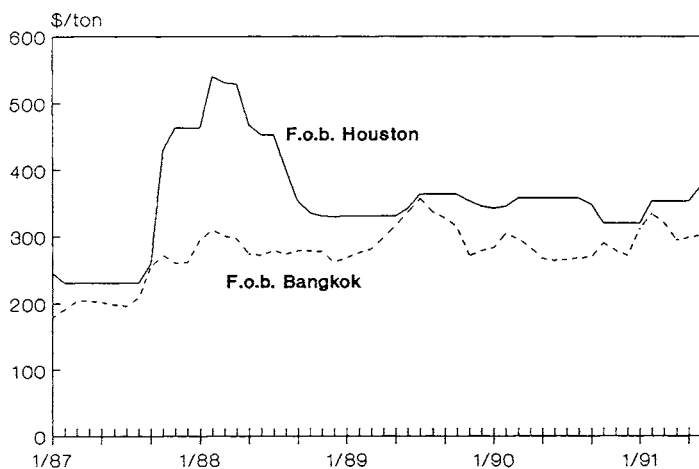
While volume is down 8 percent, according to U.S. census data, the value of U.S. rice exports from August through May is down 23 percent. Export prices have fallen as a result of weaker world trade compared to last year. In addition, the per unit value of rice exports is down 28 percent because of the larger proportion of rough and brown rice exported to Brazil and other countries this year.

Government programs will be important in maintaining U.S. rice exports. As of July 3, Public Law (P.L.) 480 Title I al-

locations for fiscal year 1991 reached 77,000 tons compared to about 184,000 tons under Title I/III programs at approximately the same time in fiscal year 1990. In addition, about 5,000 tons of rice have been allocated under the Food for Progress program. Actual P.L. 480 Title I sales reached 52,000 tons as of June 28, about 41,000 tons less than the sales registered under Title I/III a year ago. About 255,000 tons of rice have been programmed under Title II as of July 9, with Liberia and Peru the largest recipients.

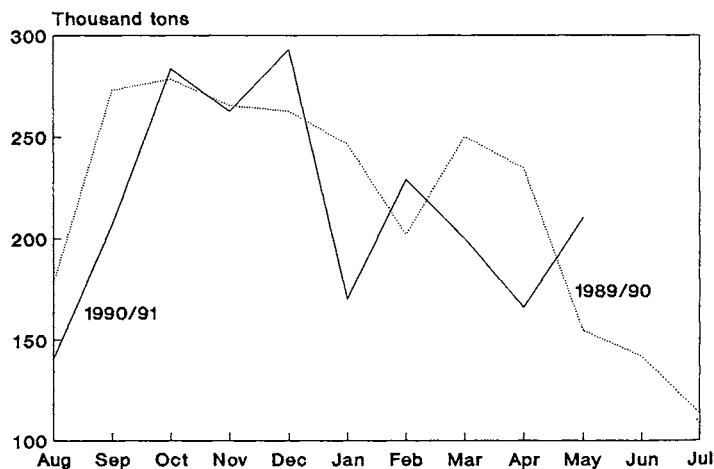
Guaranteed credit under GSM-102 and GSM-103 programs continues to be important for U.S. rice exports. Fiscal year 1991 GSM-102 credit allocations for rice reached \$132 million as of June 28, compared to about \$232 million at the same time in fiscal year 1990 when Iraqi importers were participating in the program. Credit guarantee approvals were close to \$32 million as of June 28, compared to \$164 million at the same time a year earlier. The major purchasing markets have been Mexico, Senegal, and Algeria. For GSM-103, fiscal year 1991 allocations reached \$10 million as of June 28, compared to \$22 million at the same time in fiscal year 1990. Approvals equaled almost \$5 million as of June

Figure 11  
U.S. and Thailand 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 quotas.

Figure 12  
Monthly U.S. Rice Exports

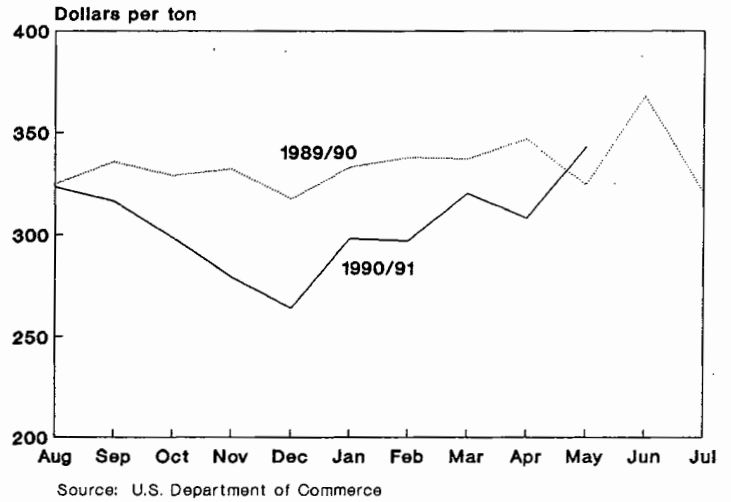


Source: U.S. Department of Commerce

28, compared to about \$20 million a year ago. Jordan is the sole market receiving GSM-103.

The Export Enhancement Program (EEP) has assisted U.S. exporters to counter subsidized EC sales of rice in Eastern Europe and Turkey in fiscal 1991. Between October 1, 1990, and July 17, 1991, U.S. exporters sold 25,120 tons of rice to Czechoslovakia, Hungary, and Poland. Bonuses averaged over \$80 per ton. Turkey has also purchased 47,000 tons of rice under EEP in fiscal 1991. Bonuses for EEP sales to Turkey averaged \$36 per ton. On May 17, 1991, Turkey was offered an additional 50,000 tons of rice under EEP, but has not yet purchased rice against the new allocation.

Figure 13  
Monthly U.S. Rice Export Unit Values



# Domestic Rice Consumption Patterns, 1988/89

Nathan W. Childs 1/

**Abstract:** Both total and per capita U.S. rice consumption rose in 1988/89, according to the results of USDA's milled rice distribution survey. Growth was fastest for processed food use and specialty rices. Brewers use and regular milled white rice rose at slower rates. New products accounted for most of the growth in processed food use, while parboiled and brown rice fueled the growth in the specialty rice market. Direct food use consumption of rice expanded the most where per capita rice consumption was already higher than the national average—the Middle Atlantic, Pacific, and South Atlantic regions.

**Key words:** Rice consumption, processed foods, specialty rice, brewers use

Preliminary results of USDA's biannual milled rice distribution survey for marketing year 1988/89 show domestic shipments of 42.6 million hundredweight (cwt). This is an increase of 4.2 million cwt since the last completed survey for the 1986/87 marketing year. With almost 90 percent of domestic rice millers participating, the current survey accounts for an estimated 90 percent of domestic food shipments and about 87 percent of all domestic shipments. Altogether, 26 rice millers and 6 repackagers participated in the 1988/89 survey.

Survey results indicate continued rising total and per capita rice consumption in the United States. However, the increase in certain processed foods and some specialty rices was substantially greater than overall growth. And the Middle Atlantic, Pacific, and South Atlantic regions are increasing their share of domestic rice use. California mills experienced the largest growth in total domestic shipments, while shipments from the Louisiana-Florida and Texas-Mississippi mill areas declined from two years earlier. Arkansas remains the largest supplier of domestic milled rice, shipping over 40 percent of total domestic rice shipments in 1988/89 and posting a 24 percent increase over two years earlier.

The three principal uses for rice are direct food use, processed foods, and beer. Participating U.S. rice millers and repackagers reported 42.6 million cwt of milled rice shipped to these outlets in marketing year 1988/89. This is an 11 percent increase over the 38.3 million cwt reported shipped in the 1986/87 milled rice survey. Reported shipments in 1986/87 were almost 14 percent above two years earlier, thus indicating a longer term trend.

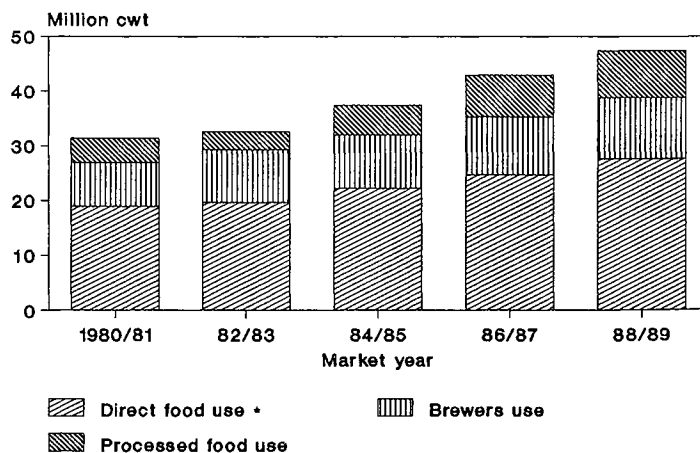
Adding imports of milled rice reported by the Department of Commerce (not included in the survey results) and substituting U.S. Department of Treasury brewery data for survey

Table A-1--Survey reported shipments of milled rice by outlet, crop years 1984/85, 1986/87, and 1988/89

Outlet	1984/85	1986/87	1988/89
		1,000 cwt	
Direct Food 1/	21,198	22,874	25,049
Processed Foods	5,438	7,630	8,621
Beer	7,038	7,825	8,895
Total Domestic 2/	33,673	38,329	42,564
Territories	3,622	3,805	3,318

1/ Includes packaged mixes shipped directly by mills.  
2/ Totals may not add due to rounding.

Figure A-1  
Domestic Milled Rice Shipments



\*Includes imports

results indicates total domestic shipments were 47.5 million cwt in 1988/89, up almost 11 percent from the comparable figure in 1986/87. This is down from a 14 percent increase between 1984/85 and 1986/87 measured on the same basis. The biannual milled rice survey has consistently under-

1/ Agricultural Economist, Economic Research Service, USDA.

reported shipments to U.S. brewers. Thus, the 47.5 million cwt is likely a closer estimate of actual U.S. rice consumption in 1988/89.

### Direct Food Use

In 1988/89, just under 59 percent of total survey reported domestic shipments was for direct food use, about a percentage point smaller share than 2 years earlier. This represents a 9.5 percent increase from 1986/87 and 1.6-percentage-point faster growth rate than in the previous survey.

Long grain rice accounted for 72 percent, medium grain 26 percent, and short grain about 2 percent of total domestic direct food shipments in 1988/89. The comparable figures for 2 years earlier were 79, 20, and 1 percent. The rise in medium and short grain percentages is due to a larger share of domestic shipments originating from California mills.

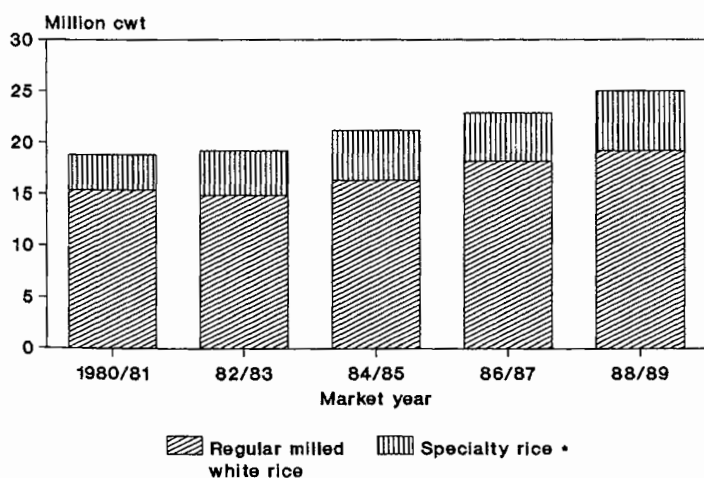
Direct food use of rice is composed of regular milled white rice and specialty rice. The specialty rice share of direct food use shipments rose from 20 percent in 1986/87 to 23 percent in 1988/89. Regular milled white rice's share of direct food use has declined 5 percentage points since 1980/81.

The Middle Atlantic and Pacific regions each accounted for roughly 26 percent of direct food shipments in 1988/89. The South Atlantic accounted for a little over 19 percent of direct food use shipments, 1 percent below two years ago, but still up from 1980/81. The West South Central region received about 10 percent of direct food use shipments, down from 14 percent in 1986/87, and well below its share in 1984/85.

The remaining regions account for a small portion of direct food use and, except for New England, their shares declined during the 1980's.

Figure A-2

### Specialty Rice as a Share of Direct Food Use



\*Specialty rice includes parboiled, precooked, aromatic, and brown rice.

### Specialty Rice Shipments

Reported direct food use shipments of specialty rices (parboiled, precooked, brown, and aromatic) totaled 5.77 million cwt in 1988/89, up 23 percent from 1986/87 and almost double reported shipments a decade earlier. Close to 60 percent of specialty rice shipments originated from the Texas-Mississippi mill area. Most of the remainder was from the Arkansas-Missouri mill area. Specialty rice shipments to U.S. territories totaled 13,600 cwt, down from 89,000 cwt two years earlier.

Parboiled rice shipments totaled 4.38 million cwt, up over 1 million cwt from two years earlier and almost 2.5 times the quantity shipped in 1978/79. Almost all parboiled rice was long grain. Brown rice shipments were 691,400 cwt, almost 70 percent above two years earlier and triple the shipments a decade earlier. Short and medium grain rices made up about one-third of brown rice shipments in 1988/89.

However, precooked rice shipments declined from 734,800 cwt in 1986/87 to 671,000 in 1988/89. Precooked rice has declined as a share of specialty rice shipments in each survey since 1980/81, when total shipments exceeded a million cwt.

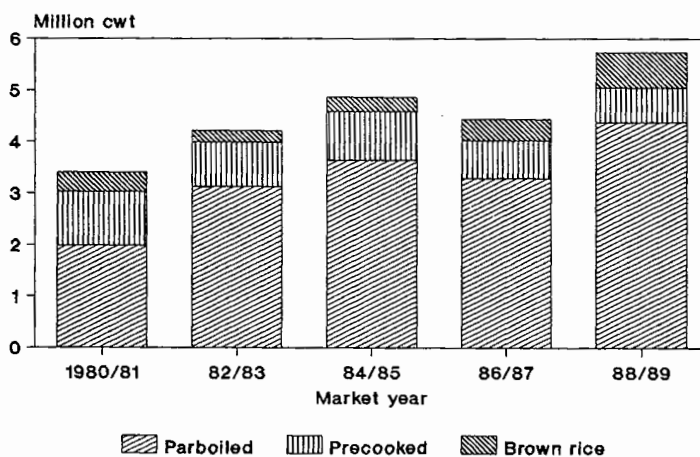
Table A-2--Specialty rice shipments, crop years 1984/85, 1986/87, and 1988/89 1/

Specialty rice	1984/85	1986/87	1988/89
1,000 cwt			
Parboiled	3,639	3,293	4,383
Precooked	953	734	671
Brown Rice	270	407	691
Other 2/	24	254	23
Total	4,887	4,689	5,768

1/ Includes shipments to U.S. territories.  
2/ Principally aromatic rice. May include some erroneous reporting of aromatic rice.

Figure A-3

### Breakdown of Specialty Rice Use



Almost all precooked rice is long grain and originates in the Texas-Mississippi mill area.

Aromatic rice shipments totaled 22,500 cwt in 1988/89 and all shipments originated in the Texas-Mississippi mill area. This is about the same as reported in the 1984/85 survey, but much less than reported in 1986/87. However, the large number of aromatic rice shipments reported in 1986/87 was likely due to an incorrect listing of certain specialty rices as aromatic rice.

### Processed Food Use

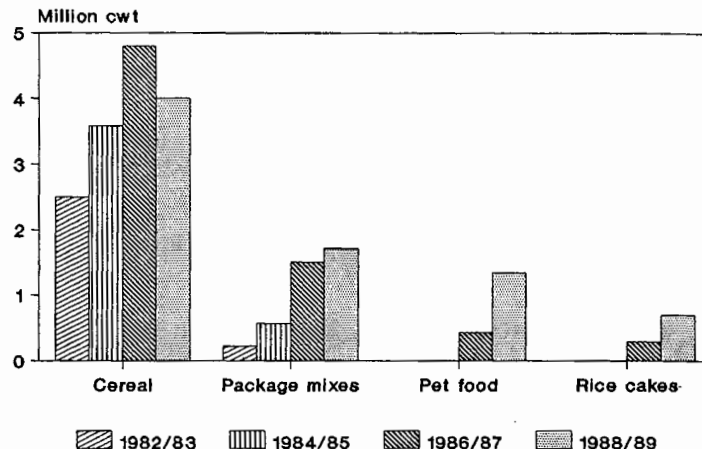
Processed food use of rice totaled 8.6 million cwt in 1988/89, an increase of almost a million cwt from 1986/87. This category accounted for 20.3 percent of total domestic rice shipments in 1988/89, up almost one-half a percentage point from a two years earlier. Processed food use of rice has accounted for a larger share of domestic rice use since 1978/79.

Use of rice in processed foods is increasing much faster than either direct food use or brewers use. Processed food use rose 13 percent from 1986/87. Use in processed foods has increased 130 percent since 1978/79, far surpassing the 65 percent increase in direct food use. Since 1986/87, most of the increase in processed food use has been by new products, most importantly pet foods and rice cakes.

Cereal still accounts for the largest share of processed food use, about 46 percent. But total cereal shipments were 3.9 million cwt, down almost 18 percent from 1986/87. Medium and long grain head rice from the Arkansas-Missouri mill area accounted for two-thirds of rice used in cereals, the remainder was mostly brokens from California.

Two relatively new uses of rice, pet foods and rice cakes, showed the largest increases in the 1988/89 survey. Pet

Figure A-4  
Major Processed Food Uses



foods are currently the third largest processed food use of rice, accounting for over 15 percent of total shipments. Shipments rose from 431,000 cwt in 1986/87 to over 1.34 million in 1988/89. Brokens made up 75 percent of rice used in pet foods, the remainder was mostly rice flour and short grain rice.

Rice cakes jumped from 287,000 cwt in 1986/87 to over 700,000 in 1988/89. Most rice used in rice cakes came from California and was made up of all three grain lengths. Neither pet food nor rice cakes was a large enough market to separately track prior to 1986/87.

Rice uses in package mixes, soups, frozen dinners, and candy also were noticeably greater in 1988/89. Package mixes are the second largest processed food use, if rice shipped directly from mills as packaged rice mixes is included. Shipments of packaged rice mixes rose from 1.5 million cwt in 1986/87 to 1.7 million cwt in 1988/89. Almost all rice used in package mixes was long grain. Shipments by Arkansas-Missouri rice mills to processors accounted for two-thirds of package mix shipments, and direct shipments by Texas-Mississippi mills accounted for the remainder.

Rice use in candy rose 50 percent to 220,000 cwt in 1988/89. Brokens from California made up about half the rice used in candy, and medium grain rice from Arkansas-Missouri made up the remainder. Rice used in frozen dinners rose 45 percent to 88,600 cwt and was all long grain from the Arkansas-Missouri rice milling area. Use of rice in soups was 118,500 cwt, up 56 percent from two years earlier but still less than one-half the amount reported in 1984/85. All rice used in soup was long grain and came from the Texas-Mississippi and Arkansas-Missouri mill areas.

Baby food continues to decline as a use of rice. At 172,100 cwt, rice use in baby food was only about one-half the

Table A-3--Principal processed food uses of rice

Product	1984/85	1986/87	1988/89
	1,000 cwt		
Cereal	3,577	4,800	3,937
Soup	241	76	119
Baby food	316	233	172
Rice cakes	NA	288	707
Package mixes 1/	567	1,505	1,705
Frozen dinners	NA	61	89
Candy	NA	147	220
Pet food	NA	431	1,338
Other	738	91	335
Total 2/	5,438	7,630	8,621

NA = Not applicable. Categories not included in 1984/85 survey. 1/ Includes package mixes shipped directly by mills. 2/ Totals may not add due to rounding.

reported shipments in 1984/85 and about one-third below two years earlier. Most rice used in baby food was rice flour from the Louisiana-Florida mill area. The remainder was short grain from California.

### Brewers Use

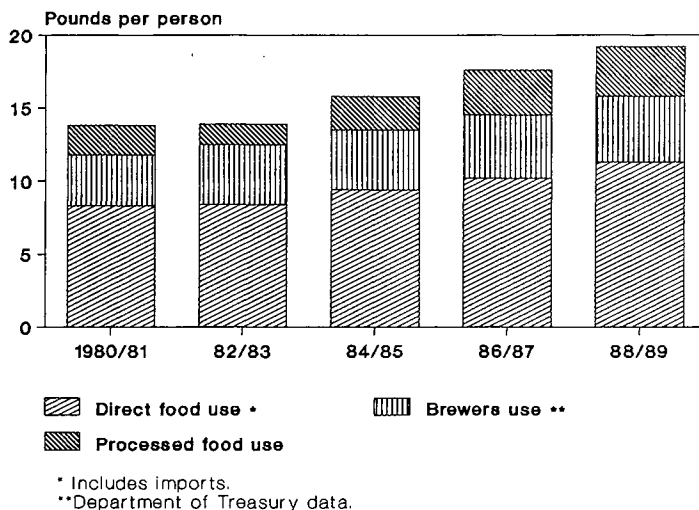
Reported survey use of rice by brewers rose from 7.83 million cwt in 1986/87 to 8.90 million cwt in 1988/89, almost a 14 percent increase. However, much of this reported increase was due to a higher participation rate in the survey among mills shipping to brewers. U.S. Department of Treasury data on rice shipments for brewers indicates shipments rose from 10.5 million cwt in 1986/87 to 11.15 million in 1988/89, about a 6 percent increase.

California is the largest supplier of rice to brewers, mostly broken and medium grain. The Arkansas-Missouri mill area is the second largest supplier of rice to brewers, shipping mostly broken and some medium and long grain rice. These two milling regions account for 90 percent of rice shipments to domestic brewers.

### Per Capita Use

Per capita direct food use of rice was 10.4 pounds in 1988/89, up 7 percent from two years earlier. Adding the 8.6 million cwt of rice used in processed foods, the 11.2 million cwt reported by the U.S. Department of Treasury used by brewers, and the 3.7 million cwt (rough) of imported rice gives a per capita consumption of 19.2 pounds. This is a 9 percent increase from two years earlier. Processed food use showed the largest per capita increase in consumption.

Figure A-5  
Per Capita U.S. Rice Consumption



The Middle Atlantic region had the highest per capita direct food use, 16.9 pounds, and the Pacific region followed very closely with 16.7 pounds. For both regions, this was an increase from 1986/87. Per capita consumption was up 24 percent in the Middle Atlantic region.

The South Atlantic and West South Central, at 11 and 9.1 pounds, ranked third and fourth in per capita direct food use. This represented a 4.4 percent and 24 percent decline, respectively, for each region. The West South Central region exhibited a 14 percent decline in per capita direct food use in the 1986/87 survey, while the South Atlantic region showed a 45 percent increase.

# Characteristics of U.S. Rice Farms and Operators

By

Parveen P. Setia<sup>1/</sup>

**Abstract:** A brief description of changes in the characteristics of U.S. rice farms and operators from 1982 to 1987, based on the U.S. census of agriculture data, is presented. During this 5-year period, U.S. rice farms have increased in number but decreased in average size. In contrast, the total number of all U.S. farms decreased and average size increased by about 11 percent. The tenure data revealed that the proportion of owner operators of rice farms decreased, while the proportion of tenant operators increased. In spite of a small decline, more than 88 percent of rice farms were operated by full-time producers in 1987.

**Keywords:** Characteristics, census of agriculture, farm size, rice

The U.S. rice producing sector, like other agricultural sectors, is dynamic and influenced by technological, environmental, policy, and economic forces. In this article the changes in the characteristics of U.S. rice farms and operators in 1982 and 1987 are compared using census of agriculture data. The data are reported for the U.S. as a whole and for major rice-producing states.

Six states — Arkansas, California, Louisiana, Mississippi, Missouri, and Texas — produced more than 99 percent of U.S. rice (Figure B-1). In both censuses, Arkansas had the highest and Missouri the lowest proportion of rice farms. Nationwide, the number of rice farms relative to total-crop farms increased to 0.6 percent between 1982 and 1987.

Based on the value of sales, the largest number of rice farms were in the \$100,000 to \$249,999 category in both 1987 and 1982 (Table B-1). However, the number having a sales value of \$250,000 or more decreased by more than 20 per-

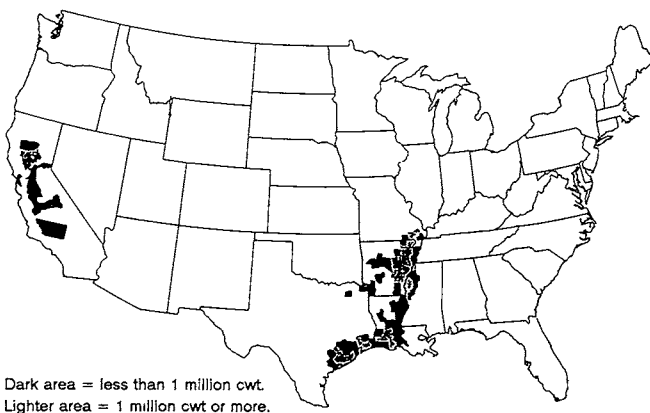
## The Census of Agriculture: Background

The census of agriculture provides a periodic statistical picture of the nation's farming, ranching, and related activities, and is the principal source of consistent, comparable data at the county, state, and national levels. Many federal and state programs are designed and evaluated on the basis of this census data. The private sector uses census information to improve agricultural production and distribution.

The first agricultural census was taken in 1840 as part of the sixth decennial census of population. From 1840 to 1950, an agriculture census was taken as part of the decennial census. From 1954 to 1974, a census of agriculture was taken for the years ending with digits 4 and 9. Title 13, United States Code, sections 142(a) and 191 require that the census be taken in 1979, 1983 and in every fifth year after 1983 and that it cover the prior year.

The current definition of a farm (first used in the 1974 census) is any place where \$1,000 or more of agricultural products were produced and sold, or normally would have been sold, during the census year. Dollar amounts shown are expressed in current dollars and have not been adjusted for inflation. Since the census data indicate the situation at a given point in time, care should be taken in making inferences regarding trends.

Figure B-1  
U.S. Rice Producing Counties



<sup>1/</sup> Agricultural Economist, Commodity Economics Division, ERS/USDA.



Table B-1--Distribution of U.S. rice farms by value of agricultural products sold

Value of sales (\$)	Arkansas		California		Louisiana		Mississippi		Missouri		Texas		Total USA	
	1987	1982	1987	1982	1987	1982	1987	1982	1987	1982	1987	1982	1987	1982
Less than 2,500	18	15	6	8	44	30	0	2	0	0	2	3	70	58
2,500-4,999	58	50	12	13	71	53	3	1	5	0	5	5	154	122
5,000-9,999	162	127	34	37	142	143	3	4	11	3	12	9	364	323
10,000-19,999	316	242	68	73	219	200	9	10	22	12	41	26	675	563
20,000-39,999	530	580	134	112	308	318	35	26	59	35	112	84	1,178	1,155
40,000-99,999	1,410	1,360	476	237	701	753	163	76	144	91	447	249	3,341	2,766
100,000-249,999	2,066	1,874	529	354	592	725	295	227	155	112	426	425	4,063	3,717
250,000-499,999	800	870	214	237	141	216	173	215	44	35	126	241	1,499	1,814
More than 500,000	253	313	181	248	55	67	122	153	9	15	41	112	669	913
All producers	5,613	5,431	1,654	1,319	2,273	2,505	803	714	449	303	1,212	1,154	12,013	11,431

Table B-2--Number of rice farms relative to other agricultural commodities, selected states

Item	Arkansas		California		Louisiana		Mississippi		Missouri		Texas		Total USA	
	1987	1982	1987	1982	1987	1982	1987	1982	1987	1982	1987	1982	1987	1982
All farms	48,242	50,504	83,217	82,383	27,350	31,558	34,074	42,393	106,105	112,419	188,788	184,945	2,087,759	2,239,300
Rice	5,613	5,431	1,654	1,319	2,273	2,505	803	714	449	303	1,212	1,154	12,013	11,431
Percent of total	11.6	10.8	2.0	1.6	8.3	7.9	2.4	1.7	0.4	0.3	0.6	0.6	0.6	0.5
All grains(Incl. rice)	8,107	10,711	2,624	3,308	4,795	7,362	4,274	8,774	24,024	28,550	11,767	20,946	458,396	576,369
Percent of total	16.8	21.2	3.2	4.0	17.5	23.3	12.5	20.7	22.6	25.4	6.2	11.3	22.0	25.7
Other field crops	3,214	2,119	5,267	4,947	4,015	3,563	4,518	3,876	6,091	4,140	21,065	17,391	243,628	253,093
Percent of total	6.7	4.2	6.3	6.0	14.7	11.3	13.3	9.1	5.7	3.7	11.2	9.4	11.7	11.3
Livestock	26,719	27,679	18,836	21,192	13,384	15,556	19,441	23,238	63,827	67,520	129,600	123,166	892,267	905,963
Percent of total	55.4	54.8	22.6	25.7	48.9	49.3	57.1	54.8	60.2	60.1	68.6	66.6	42.7	40.5
Dairy	957	1,265	2,532	2,708	856	1,059	818	1,136	4,165	4,923	2,402	2,773	138,311	164,472
Percent of total	2.0	2.5	3.0	3.3	3.1	3.4	2.4	2.7	3.9	4.4	1.3	1.5	6.6	7.3
Poultry	5,470	5,290	1,201	1,472	488	587	1,470	1,659	959	1,082	1,817	1,831	38,494	41,953
Percent of total	11.3	10.5	1.4	1.8	1.8	1.9	4.3	3.9	0.9	1.0	1.0	1.0	1.8	1.9
Others	3,775	3,440	52,757	48,756	3,812	3,431	3,553	3,710	7,039	6,204	22,137	18,838	316,663	297,450
Percent of total	7.8	6.8	63.4	59.2	13.9	10.9	10.4	8.8	6.6	5.5	11.7	10.2	15.2	13.3

cent between 1982 and 1987. In contrast, all U.S. farms in this category increased by about 8 percent.

Rice is important to the farm economies of Arkansas and Louisiana, constituting about 29 and 30 percent, respectively, of the total value of agricultural production from crop farms. In comparison, rice contributed about 1 percent in 1982 and 1987 to the total value of production in Missouri.

Since other commodities can compete with rice for farmers' land, labor, capital, and management resources, it is worthwhile to examine rice farms relative to other agricultural commodities. In 1987, the number of all-grain and total farms decreased while the number of rice farms increased (Table B-2).

### Profile of U.S. Rice Farms

The average size of U.S. rice farms (any farm that grows rice) decreased between 1982 and 1987 from 283 acres to 202 acres (Table B-3). Though a decline during this period is consistent with other field crops, it was largest for rice (29 percent). In comparison, the average farm size for sorghum

declined by 19 percent, oats by 12 percent, cotton by 11 percent, barley by 6.4 percent, wheat by 5.6 percent, and corn by 4 percent. The smallest decline (1.6 percent) was in soybeans. In contrast, the average farm size for all U.S. farms increased from 416 acres in 1982 to 462 acres in 1987, an increase of 11 percent. This suggests that changes in economic conditions and government policy influenced farmers' decision to diversify their crop farms with other enterprises such as specialty crops, livestock, etc.

While the average rice-farm size declined, the state rankings remained unchanged. In both 1987 and 1982, the average farm size in Arkansas, Louisiana, and Missouri was below the national average, while in California, Mississippi, and Texas it exceeded the national average. Table 4 shows the size distribution of rice farms as a percent of the state total for 1987 and 1982. Of the total rice farms in the U.S., about 80 percent contained 260 acres or more. Out of all the states, Mississippi had the highest percentage (23.3 percent) and Missouri the lowest percentage (4 percent) of farms in the category of 2,000 acres or more. At the other end of the size distribution spectrum, rice farms with fewer than 100

Table B-3--Distribution of U.S. rice farms by size

Size (acres)	Arkansas		California		Louisiana		Mississippi		Missouri		Texas		Total USA	
	1987	1982	1987	1982	1987	1982	1987	1982	1987	1982	1987	1982	1987	1982
1-9	1	6	3	11	6	14	0	0	1	0	0	3	11	34
10-49	96	116	51	89	123	137	1	5	4	7	9	20	284	374
50-69	51	72	30	41	63	83	0	3	2	0	10	8	156	207
70-99	133	139	47	54	73	89	3	3	9	7	16	14	281	306
100-139	152	137	81	57	119	118	10	12	14	7	30	18	406	349
140-179	157	187	143	71	105	105	8	9	13	10	47	22	473	404
180-219	150	132	127	51	74	86	9	9	11	6	53	40	424	324
220-259	154	162	112	47	81	86	6	13	24	9	39	28	416	345
260-499	969	1,063	456	252	456	576	91	53	103	74	233	168	2,309	2,186
500-999	1,844	1,679	307	266	643	675	259	147	154	114	310	317	3,517	3,198
1,000-1,999	1,376	1,204	185	204	392	383	229	273	96	51	251	261	2,530	2,378
2,000 and over	530	532	112	176	138	153	187	187	18	18	214	255	1,206	1,326
<b>Total</b>	<b>5,613</b>	<b>5,431</b>	<b>1,654</b>	<b>1,319</b>	<b>2,273</b>	<b>2,505</b>	<b>803</b>	<b>714</b>	<b>449</b>	<b>303</b>	<b>1,212</b>	<b>1,154</b>	<b>12,013</b>	<b>11,431</b>
<b>Average farm size</b>	<b>186</b>	<b>232</b>	<b>241</b>	<b>430</b>	<b>184</b>	<b>229</b>	<b>243</b>	<b>337</b>	<b>148</b>	<b>217</b>	<b>247</b>	<b>451</b>	<b>202</b>	<b>283</b>

Table B-4--Distribution of U.S. rice farms by size as a percent of state total

Size (acres)	Arkansas		California		Louisiana		Mississippi		Missouri		Texas		Total USA	
	1987	1982	1987	1982	1987	1982	1987	1982	1987	1982	1987	1982	1987	1982
1-9	0.0	0.1	0.2	0.8	0.3	0.6	0.0	0.0	0.2	0.0	0.0	0.3	0.1	0.3
10-49	1.7	2.1	3.1	6.7	5.4	5.5	0.1	0.7	0.9	2.3	0.7	1.7	2.4	3.3
50-69	0.9	1.3	1.8	3.1	2.8	3.3	0.0	0.4	0.4	0.0	0.8	0.7	1.3	1.8
70-99	2.4	2.6	2.8	4.1	3.2	3.6	0.4	0.4	2.0	2.3	1.3	1.2	2.3	2.7
100-139	2.7	2.5	4.9	4.3	5.2	4.7	1.2	1.7	3.1	2.3	2.5	1.6	3.4	3.1
140-179	2.8	3.4	8.6	5.4	4.6	4.2	1.0	1.3	2.9	3.3	3.9	1.9	3.9	3.5
180-219	2.7	2.4	7.7	3.9	3.3	3.4	1.1	1.3	2.4	2.0	4.4	3.5	3.5	2.8
220-259	2.7	3.0	6.8	3.6	3.6	3.4	0.7	1.8	5.3	3.0	3.2	2.4	3.5	3.0
260-499	17.3	19.6	27.6	19.1	20.1	23.0	11.3	7.4	22.9	24.4	19.2	14.6	19.2	19.1
500-999	32.9	30.9	18.6	20.2	28.3	26.9	32.3	20.6	34.3	37.6	25.6	27.5	29.3	28.0
1,000-1,999	24.5	22.2	11.2	15.5	17.2	15.3	28.5	38.2	21.4	16.8	20.7	22.6	21.1	20.8
2,000 and over	9.4	9.8	6.8	13.3	6.1	6.1	23.3	26.2	4.0	5.9	17.7	22.1	10.0	11.6
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

Figure B-2A  
Distribution of U.S. Rice Farms by Acres Harvested, 1987

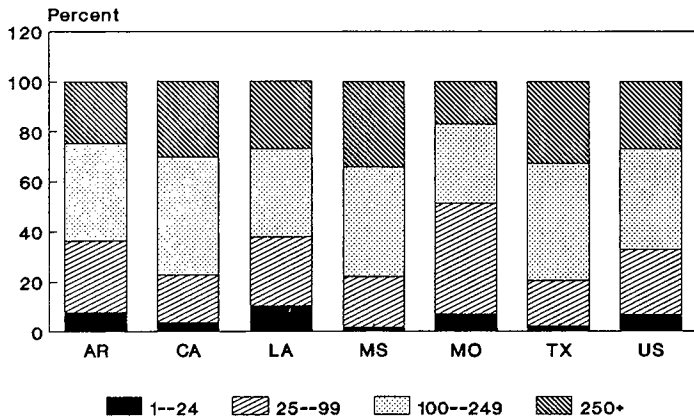
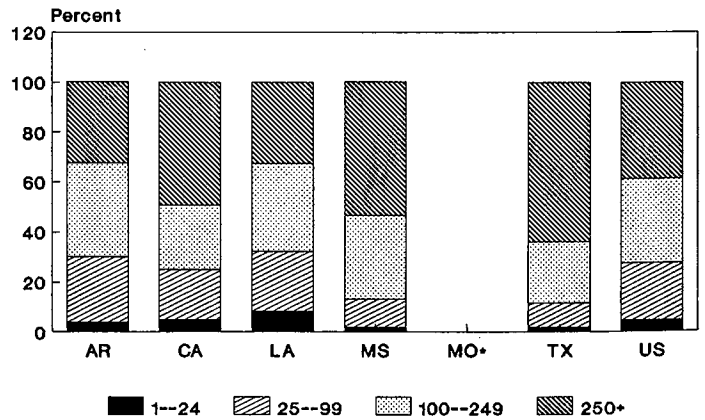


Figure B-2B  
Distribution of U.S. Rice Farms by Acres Harvested, 1982



\*The data for Missouri was not available.

acres were less than 8 percent of the national total in 1987 and 1982. Only two states, California and Louisiana, had a higher percentage of small farms (100 acres) than the average. Mississippi had the smallest percentage of farms with less than 100 acres in 1987 and 1982.

In 1987, the largest number of U.S. rice farms (over 40 percent) had harvests on 100 to 249 acres (Figures B-2 A and B). In contrast, the largest number of rice farms (38.7 percent) had harvests on more than 250 acres in 1982. According to both censuses, less than 7 percent of the U.S. rice farms had harvests on 25 acres or less. The changes in economic conditions, productivity, technology, and government programs prompted the subdivision of large farms. The result was a decline in the number of acres harvested per farm.

### Profile of U.S. Rice Producers

The census information also indicates that the characteristics of rice producers changed from 1982 to 1987 (Figures B-3 A and B). The decline in the proportion of full owners who produced rice is similar to the decline of full owners of other field crops such as corn, wheat, sorghum, barley, soybeans, and cotton. The pattern of change for part owners was mixed. The proportion of part owners declined for rice, cot-

ton, sorghum, and oats while that of corn, soybeans, barley, and wheat increased.

The change in the proportion of tenants was much more pronounced. Between the two censuses, the proportion of tenants operating rice farms increased by 37 percent. The increase in the proportion of tenants was larger for rice than for other field-crop producers such as corn, wheat, sorghum, barley, soybeans, and cotton. The proportion of tenants on oats farms actually decreased by 44 percent during this period. However, an examination of tenure structure for all U.S. farms indicates that the proportions for full owners, part owners, and tenants were almost same in 1987 and 1982.

In 1987, the highest proportion of tenants (about 49.3 percent) was in Mississippi, whereas in 1982 the highest proportion (32 percent) was in Texas. Given the large financial outlays necessary to produce rice, the change in tenure structure may be a response to the changes in government policy and economic conditions in the 1980's. Information on racial and gender mix in both censuses indicates that more than 98 percent of U.S. rice operators are whites and more than 97 percent of rice farms are operated by males.

In terms of principal occupation, though the proportion of full-time rice producers declined somewhat, a vast majority

Figure B-3A  
Distribution of U.S. Rice Farms by Tenure, 1987

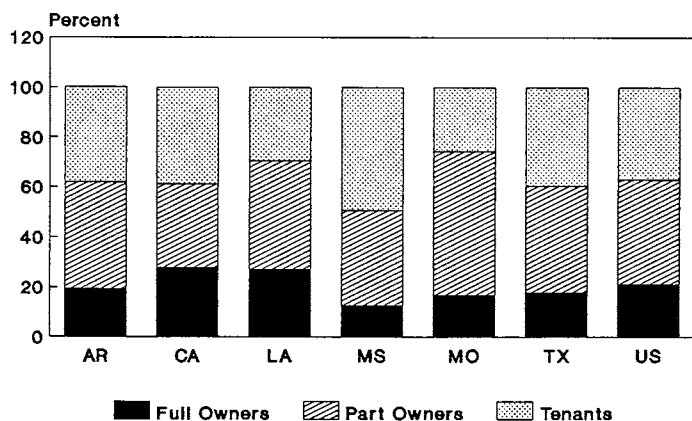


Figure B-3B  
Distribution of U.S. Rice Farms by Tenure, 1982

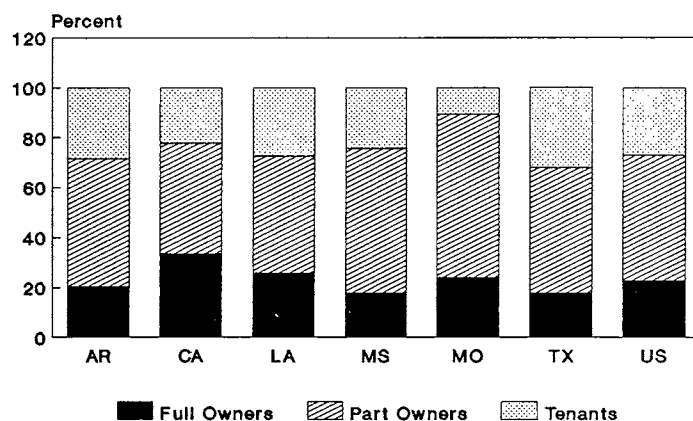


Table B-5--Distribution of U.S. rice producers by principal occupation

Occupation	Arkansas		California		Louisiana		Mississippi		Missouri		Texas		Total USA	
	1987	1982	1987	1982	1987	1982	1987	1982	1987	1982	1987	1982	1987	1982
All producers	5,613	5,431	1,654	1,319	2,273	2,505	803	714	449	303	1,212	1,154	12,013	11,431
Percent of national total	46.7	47.5	13.8	11.5	18.9	21.9	6.7	6.2	3.7	2.7	10.1	10.1	100	100
Full-time farming	5,034	5,049	1,394	1,173	1,963	2,186	742	673	392	279	1,078	1,063	10,610	10,427
Percent of state total	89.7	93.0	84.3	88.9	86.4	87.3	92.4	94.3	87.3	92.1	88.9	92.1	88.3	91.2
Other occupations	579	382	260	146	310	319	61	41	57	24	134	91	1,403	1,004
Percent of state total	10.3	7.0	15.7	11.1	13.6	12.7	7.6	5.7	12.7	7.9	11.1	7.9	11.7	8.8

of operators (more than 88 percent) were still full-time (Table B-5). The largest proportion of part-time operators was in California.

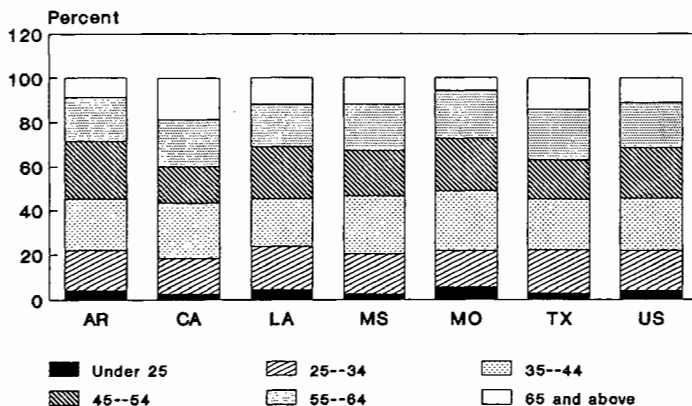
Finally, the census information revealed that the number of farms operated by rice producers in the 35 to 44 age group was the highest (23.5 percent) in 1987. In 1982, the age group 45 to 54 dominated (Figures B-4 A and B). However, the number of farms operated by individuals above 65 years of age increased by about 3 percent in 1987, which is similar to what happened with other field crops and total U.S. farms. However, only rice farms operated by the age group 35 or below increased by less than 1 percent during this period, whereas other crop farms and total U.S. farms operated by this age group declined. The largest decline (29 percent of total) was sorghum and the smallest (1.4 percent of total) was cotton. All U.S. farms operated by individuals below 35 years of age declined by 2.6 percent of total.

**Conclusions**

Only six states (Arkansas, California, Louisiana, Mississippi, Missouri, and Texas) produced more than 99 percent of U.S. rice. About 43 percent of the acreage and 42 percent of the production was concentrated in Arkansas, as reported in 1987 census. In Arkansas and Louisiana rice contributed about 29 and 30 percent, respectively, to the total value of agricultural production from crop farms. Average rice-farm size in the U.S. fell from 283 acres in 1982 to 202 acres in 1987. The decline in farm size is consistent with other field crops but it was the largest for rice. In contrast, the average farm size for all U.S. farms increased by about 11 percent during this period.

Between 1982 and 1987, the proportion of owner operators of rice farms decreased, while that of tenants increased.

**Figure B-4A**  
**Age Distribution of U.S. Rice Producers, 1987**



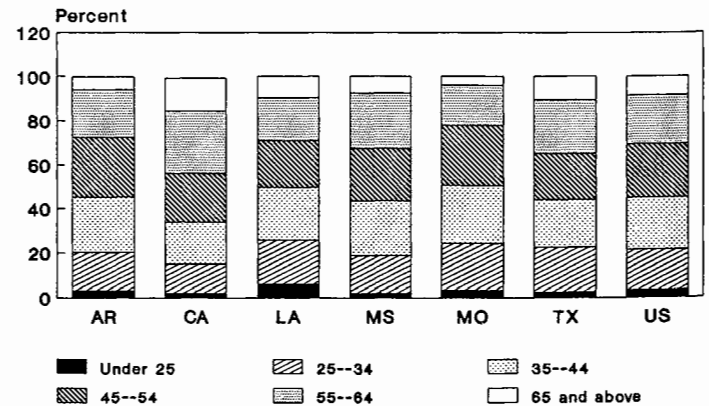
Again, the increase in the proportion of rice-farm tenants was the highest compared to other field crops. California had the highest proportion of full owners. Although in 1987 there was a decrease of about 3 percent in full-time rice producers, still more than 88 percent were operating full-time. In 1987, the number of farms operated by individuals in the age group of 35 to 44 was the highest compared to 1982 when the age group 45 to 54 dominated.

Comparing the information for U.S. rice farms with all other farms suggests that rice farms still represent a small but dynamic sector of U.S. agriculture.

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**Figure B-4B**  
**Age Distribution of U.S. Rice Producers, 1982**



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

Item	Unit	1987/88	1988/89	1989/90	1990/91	1991/92 2/ (as of July 1991)
<b>Total rice:</b>						
Area planted	Mil. acre	2.36	2.93	2.73	2.89	NA
Area harvested	"	2.33	2.90	2.69	2.81	NA
Yield	Pounds/acre	5,555	5,514	5,749	5,507	NA
Beginning stocks 3/	Mil. cwt	51.40	31.40	26.70	26.30	26.20
Production	"	129.60	159.90	154.50	154.90	157.50
Imports	"	3.00	3.70	4.20	4.80	5.50
Total supply	"	184.00	195.00	185.40	186.00	189.20
Domestic & residual 4/	"	80.40	82.30	82.40	88.80	93.00
Exports	"	72.20	85.90	76.80	71.00	70.00
Total use	"	152.60	168.20	159.20	159.80	163.00
Ending stocks	"	31.40	26.70	26.30	26.20	26.20
CCC	"	0.00	0.00	0.00	0.00	NA
Free	"	31.40	26.70	26.30	26.20	NA
Average market price 5/	\$/cwt	7.27	6.83	7.35	(6.50-7.00)	(6.00-8.00)
<b>Long:</b>						
Area harvested	Mil. acres	1.70	2.23	2.00	2.07	NA
Yield	Pounds/acre	5,241	5,345	5,464	5,225	NA
Beginning stocks	Mil. cwt	27.40	19.10	15.40	13.20	11.10
Production	"	89.00	119.40	109.20	108.20	112.00
Total supply 6/	"	119.40	142.00	128.70	126.10	128.50
Domestic & residual 4/	"	49.80	55.40	54.70	59.00	62.00
Exports	"	50.50	71.20	60.80	56.00	55.00
Total use	"	100.30	126.60	115.50	115.00	117.00
Ending stocks	"	19.10	15.40	13.20	11.10	11.50
Average market price 5/	\$/cwt	7.77	6.96	7.59	NA	NA
<b>Medium/short:</b>						
Area harvested	Mil. acres	0.64	0.67	0.69	0.74	NA
Yield	Pounds/acre	6,395	6,077	6,579	6,294	NA
Beginning stocks	Mil. cwt	21.10	10.80	9.00	11.60	13.70
Production	"	40.60	40.50	45.30	46.70	45.50
Total supply 6/	"	61.70	51.40	54.30	58.50	59.30
Domestic & residual 4/	"	29.20	27.80	26.70	29.80	31.00
Exports	"	21.70	14.70	16.00	15.00	15.00
Total use	"	50.90	42.50	42.70	44.80	46.00
Ending stocks	"	10.80	9.00	11.60	13.70	13.30
Average market price 5/	\$/cwt	6.36	6.47	6.71	NA	NA

NA = Not available.

Note: Totals may 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.): 1986/87, 1.8; 1987/88, 2.9; 1988/89, 1.5; 1989/90, 2.4; 1990/91, 2.4. 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, 1970/71-1991/92

Year beginning Aug. 1	Supply				Disappearance					Ending stocks--July 31--				
	Begin- ning stocks	Produc- tion	Imports	Total	Domestic use			Total	Exports	Resid- ual	Total disap- pearance	CCC inven- tory	Free	Total
Million cwt														
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	37.3	3.2	13.5	54.0	68.9	8.9	131.8	22.3	49.2	71.5
1983/84	71.5	99.7	0.9	172.1	33.2	3.3	12.8	49.3	70.3	5.6	125.2	25.0	21.9	46.9
1984/85	46.9	138.8	1.6	187.3	35.8	2.8	13.9	52.5	62.1	8.0	122.6	44.3	20.4	64.7
1985/86	64.7	134.9	2.2	201.8	45.6	2.6	14.1	62.3	58.7	3.5	124.5	43.6	33.7	77.3
1986/87	77.3	133.4	2.6	213.3	53.1	2.6	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	55.3	3.2	15.4	73.9	72.2	6.5	152.6	0.0	31.4	31.4
1988/89	31.4	159.9	3.7	195.0	57.7	3.0	15.6	76.3	85.9	6.0	168.2	0.0	26.7	26.7
1989/90	26.7	154.5	4.2	185.4	60.9	3.2	15.3	79.4	76.8	3.0	159.2	0.0	26.3	26.3
1990/91 1/	26.3	154.9	4.8	186.0	65.0	3.2	15.6	83.8	71.0	5.0	159.8	0.0	26.2	26.2
1991/92 2/	26.2	157.5	5.5	189.2	69.0	3.2	15.8	88.0	70.0	5.0	163.0	0.0	26.2	26.2

1/ Estimated. 2/ Projected as of July 1991.

Appendix table 3--Long grain rough and milled rice (rough equivalent): Marketing year supply and disappearance, 1982/83-1991/92

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	142.0	55.4	71.2	126.6	15.4
1989/90	15.4	109.2	128.7	54.7	60.8	115.5	13.2
1990/91 3/	13.2	108.2	126.1	59.0	56.0	115.0	11.1
1991/92 4/	11.1	112.0	128.5	62.0	55.0	117.0	11.5

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 1991.

Appendix table 4--Medium/short grain rough and milled rice (rough equivalent): Marketing year supply and disappearance, 1982/83-1991/92

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	26.7	16.0	42.7	11.6
1990/91 3/	11.6	46.7	58.5	29.8	15.0	44.8	13.7
1991/92 4/	13.7	45.5	59.3	31.0	15.0	46.0	13.3

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 1991.



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

Year beginning August 1	Rough milled -----1,000 cwt-----	Total milled produced 1/ -----	Milling yields Lbs./cwt	Total heads produced 1/ 1,000 cwt	Milling yields 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	136,574	99,597	72.9	85,301	62.5

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, 1974/75-1989/90

Year beginning August 1	South 1/	California Percent	United States
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 2/	73.11	72.40	72.90

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
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 2/	19,345	9,404	43,554	124	72,427	4,002	408	858	5,268
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

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, 1982-90

State	1982	1983	1984	1985	1986	1987	1988	1989	1990
1,000 cwt									
<b>Long grain:</b>									
Arkansas	47,608	33,012	46,320	50,712	49,462	45,259	57,447	57,458	53,034
California	826	1,309	4,288	3,834	1,520	2,592	4,200	2,250	1,728
Louisiana	10,962	7,622	13,899	14,418	14,061	12,079	17,538	13,128	14,805
Mississippi	10,094	6,440	8,265	10,058	10,692	10,098	13,275	13,395	14,250
Missouri	3,160	2,460	3,358	3,415	3,335	3,420	4,080	4,056	3,713
Texas	20,774	13,475	19,899	17,930	17,703	15,547	22,824	18,874	20,690
United States	93,424	64,318	96,029	100,367	96,773	88,995	119,364	109,161	108,220
<b>Medium grain:</b>									
Arkansas	8,400	5,784	6,400	3,809	4,544	7,656	7,236	6,322	6,912
California	27,202	14,129	20,520	18,628	21,917	22,496	22,050	26,315	25,807
Louisiana	13,900	7,071	8,033	5,838	5,319	7,031	6,542	8,360	11,664
Mississippi	1/	1/	1/	1/	1/	1/	505	1/	1/
Missouri	400	74	90	48	99	144	102	52	47
Texas	1,440	330	261	141	360	324	456	392	490
United States	51,342	27,388	35,304	28,464	32,239	37,651	36,891	41,441	44,920
<b>Short grain:</b>									
Arkansas	1,029	363	180	76	54	110	52	60	54
California	7,820	7,651	7,252	6,006	4,290	2,847	3,590	3,825	1,725
Missouri	22	1/	45	1/	1/	1/	1/	1/	1/
United States	8,871	8,014	7,477	6,082	4,344	2,957	3,642	3,885	1,779
<b>Total grains:</b>									
Arkansas	57,037	39,159	52,900	54,597	54,060	53,025	64,735	63,840	60,000
California	35,848	23,089	32,060	28,468	27,727	27,935	29,840	32,390	29,260
Louisiana	24,862	14,693	21,932	20,256	19,380	19,110	24,080	21,488	26,469
Mississippi	10,094	6,440	8,265	10,058	10,692	10,098	13,780	13,395	14,250
Missouri	3,582	2,534	3,493	3,463	3,434	3,564	4,182	4,108	3,760
Texas	22,214	13,805	20,160	18,071	18,063	15,871	23,280	19,266	21,180
United States	153,637	99,720	138,810	134,913	133,356	129,603	159,897	154,487	154,919

1/ No grain estimates.

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

State	Area harvested			Yield			Production		
	1988	1989	1990	1988	1989	1990	1988	1989	1990
	-----1,000 acres-----			-----Pounds/acre-----			-----1,000 cwt-----		
<b>Long grain:</b>									
Arkansas	1,075	1,030	1,071	5,340	5,580	4,950	57,447	57,458	53,034
California	60	30	24	7,000	7,500	7,200	4,200	2,250	1,728
Louisiana	388	295	304	4,520	4,450	4,870	17,538	13,128	14,805
Mississippi	250	235	250	5,310	5,700	5,700	13,275	13,395	14,250
Missouri	80	78	79	5,100	5,200	4,700	4,080	4,056	3,713
Texas	380	330	343	6,010	5,720	6,030	22,824	18,874	20,690
United States	2,233	1,998	2,071	5,345	5,464	5,225	119,364	109,161	108,220
<b>Medium grain:</b>									
Arkansas	134	109	128	5,400	5,800	5,400	7,236	6,322	6,912
California	315	330	338	7,000	7,970	7,635	22,050	26,315	25,807
Louisiana	147	190	241	4,450	4,400	4,840	6,542	8,360	11,664
Mississippi	10	1/	1/	5,050	1/	1/	505	1/	1/
Missouri	2	1	1	5,100	5,200	4,700	102	52	47
Texas	8	8	10	5,700	4,900	4,900	456	392	490
United States	616	638	718	5,989	6,495	6,256	36,891	41,441	44,920
<b>Short grain:</b>									
Arkansas	1	1	1	5,200	6,000	5,400	52	60	54
California	50	50	23	7,180	7,650	7,500	3,590	3,825	1,725
United States	51	51	24	7,141	7,618	7,413	3,642	3,885	1,779
<b>Total:</b>									
Arkansas	1,210	1,140	1,200	5,350	5,600	5,000	64,735	63,840	60,000
California	425	410	385	7,020	7,900	7,600	29,840	32,390	29,260
Louisiana	535	485	545	4,500	4,430	4,860	24,080	21,488	26,469
Mississippi	260	235	250	5,300	5,700	5,700	13,780	13,395	14,250
Missouri	82	79	80	5,100	5,200	4,700	4,182	4,108	3,760
Texas	388	338	353	6,000	5,700	6,000	23,280	19,266	21,180
United States	2,900	2,687	2,813	5,514	5,749	5,507	159,897	154,487	154,919

1/ No medium grain estimated.

Source: Crop Production 1990 Summary, January 1991, National Agricultural Statistics Service, USDA.

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

State	Area planted						1991/90 Percent
	1986	1987	1988	1989	1990	1991	
	-----1,000 acres-----						
<b>Long grain:</b>							
Arkansas	944	885	1,084	1,039	1,110	1,199	108
California	20	36	60	30	24	15	63
Louisiana	310	265	395	310	310	270	87
Mississippi	200	200	255	240	255	250	98
Missouri	66	64	81	80	91	99	109
Texas	282	264	382	332	345	311	90
United States	1,822	1,714	2,257	2,031	2,135	2,144	100.4
<b>Medium grain:</b>							
Arkansas	85	133	135	110	129	150	116
California	288	299	320	335	343	295	86
Louisiana	120	160	150	195	245	260	106
Mississippi	1/	1/	10	1/	1/	1/	
Missouri	2	3	2	1	1	1	100
Texas	8	6	8	8	10	9	90
United States	503	601	625	649	728	715	98.2
<b>Short grain:</b>							
Arkansas	1	2	1	1	1	1	100
California	55	39	50	50	23	10	43
United States	56	41	51	51	24	11	45.8
<b>Total:</b>							
Arkansas	1,030	1,020	1,220	1,150	1,240	1,350	109
California	363	374	430	415	390	320	82
Louisiana	430	425	545	505	555	530	95
Mississippi	200	200	265	240	255	250	98
Missouri	68	67	83	81	92	100	109
Texas	290	270	390	340	355	320	90
United States	2,381	2,356	2,933	2,731	2,887	2,870	99.4

1/ No medium grain estimated.

Source: Crop Production and Prospective Plantings, March 1991.  
National Agricultural Statistics Service, USDA.  
Acreage, June 1991, National Agricultural Statistics Service, USDA.

Appendix table 11--U.S. rice acreage, yield, and production, 1958-90

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	153,588
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	1,088	5,514	159,897
1989 2/	2,731	2,687	1,184	5,749	154,487
1990 3/	2,887	2,813	1,034	5,507	154,919

--- = 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, 1953-90

Crop year	United States	Arkansas	Louisiana	Mississippi	Texas	California
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 1/	5,507	5,000	4,860	5,700	6,000	7,600

1/ Preliminary.

Appendix table 13--Proportional distribution of rice production, by type of grain, United States, 1953-90

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 1/	69.9	29.0	1.1	154,919

1/ Estimated.



Appendix table 14--Use and ending stocks for rice, United States, 1953-90

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	7.8	12.1
1963	22.5	2.5	3.8	41.8	70.5	7.5	10.7
1964	24.3	2.5	4.3	42.5	73.5	7.6	10.4
1965	23.4	2.7	4.7	43.3	76.4	8.2	10.8
1966	24.0	2.7	5.3	51.6	84.8	8.5	10.0
1967	25.0	3.2	5.4	56.9	91.1	6.7	7.4
1968	27.0	2.9	5.8	56.1	94.7	16.2	17.1
1969	23.5	2.5	7.1	56.9	90.8	16.4	18.1
1970	25.1	2.5	6.8	46.5	83.1	18.7	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	98.7	36.3	36.8
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	31.5	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	37.2	3.2	13.5	68.9	131.8	71.5	54.0
1983	33.2	3.3	12.8	70.3	125.2	46.9	37.5
1984	35.8	2.8	13.9	62.1	122.6	64.7	52.8
1985	45.6	2.6	14.1	58.7	124.5	77.3	62.1
1986	53.1	2.6	14.8	84.2	161.9	51.4	31.7
1987	55.3	3.2	15.4	72.2	152.6	31.4	20.6
1988	57.7	3.0	15.6	85.9	168.2	26.7	15.9
1989	60.9	3.2	15.3	76.8	159.2	26.3	16.5
1990 3/	65.0	3.2	15.6	71.0	159.8	26.2	16.4

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, 1953-90

Crop year	-----Ending stocks-----			Farm price	Loan rate	Target price	Direct payment
	CCC 1/	Free	Total				
	-----Mil. cwt-----			-----\$/cwt-----			
1953	1.2	6.3	7.5	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	1.9	5.9	7.8	5.10	4.71	---	---
1963	1.4	6.1	7.5	4.92	4.71	---	---
1964	1.0	6.6	7.6	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	0.0	6.7	6.7	5.12	4.55	---	---
1968	6.3	9.9	16.2	4.90	4.60	---	---
1969	6.4	10.0	16.4	5.32	4.72	---	---
1970	9.5	9.2	18.7	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	19.2	17.1	36.3	8.35	8.52	---	---
1976	18.7	21.8	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	31.5	8.16	6.40	8.53	0.78
1979	1.7	24.0	25.7	10.50	6.79	9.05	0.00
1980	0.0	16.5	16.5	12.80	7.12	9.49	0.00
1981	17.5	31.5	49.0	9.05	8.01	10.68	0.28
1982	22.3	49.2	71.5	7.91	8.14	10.85	2.71
1983	25.0	21.9	46.9	8.57	8.14	11.40	2.77
1984	44.3	20.4	64.7	8.04	8.00	11.90	3.76
1985	43.6	33.7	77.3	6.53	8.00	11.90	3.90
1986	8.7	42.7	51.4	3.75	7.20	11.90	4.70
1987	0.0	31.4	31.4	7.27	6.84	11.66	4.82
1988	0.0	26.7	26.7	6.83	6.63	11.15	4.31
1989	0.0	26.3	26.3	7.35	6.50	10.80	3.56
1990 2/	0.0	26.2	26.2	6.75	6.50	10.71	4.21

--- = Not applicable.

1/ Commodity Credit Corporation. 2/ Estimated.

Appendix table 16--Provisions under Food Security Act of 1985 and its modifications

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

NA = Not available.

Appendix table 17--Class loan rates and differentials, 1984-91

Item	Crop year							
	1984	1985	1986	1987	1988	1989	1990	1991
	\$/cwt							
Milled rice:								
Long whole kernels	14.96	14.53	12.44	11.36	10.89	10.81	10.84	10.74
Medium and short whole kernels	10.81	10.50	10.44	10.36	9.89	9.81	9.84	9.74
Broken kernels	6.20	6.02	4.98	5.68	5.45	5.41	5.42	5.37
Differential (milled basis) 1/	4.15	4.03	2.00	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
Average, long grain	8.71	8.68	7.52	7.03	6.75	6.68	6.68	6.65
Average, medium grain	6.67	6.49	6.36	6.54	6.33	6.13	6.21	6.11
Average, short grain	6.65	6.49	6.44	6.39	5.98	5.98	6.12	6.07

1/ The loan differential (milled basis) is the difference between the class whole kernel loan rates.

2/ The rough rice loan rate for each class of rice is the sum of the whole kernels' loan rate weighted by its milling yield (average 56 percent) and the broken kernels' loan rate weighted by its milling yield (average 12 percent).

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

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

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-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 crop year 1/

Item	1980/81	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90	1990/91
----- \$/cwt -----											
Month:											
August	10.60	11.80	7.31	8.41	8.22	7.86	4.02	3.82	7.49	7.41	6.74
September	10.20	10.70	7.75	8.48	8.17	7.55	3.86	4.34	6.97	7.59	6.25
October	10.90	10.20	7.73	8.80	8.08	7.73	3.83	6.25	6.85	7.41	6.00
November	11.60	9.86	7.78	8.80	8.13	7.84	3.90	7.53	6.81	7.03	6.30
December	13.10	9.34	8.06	8.66	8.08	7.71	3.74	7.64	6.68	7.05	6.08
January	13.20	9.34	8.05	8.57	8.09	7.90	3.55	7.93	6.58	7.44	6.33
February	13.00	9.46	8.26	8.85	7.72	7.86	3.84	9.37	6.67	7.57	6.72
March	13.40	8.99	7.99	8.63	8.17	7.60	3.62	9.22	6.60	7.55	7.08
April	13.80	8.54	8.23	8.49	8.20	5.32	3.63	8.92	6.74	7.41	7.46
May	13.30	8.55	8.23	8.24	7.91	4.52	3.71	7.97	6.78	7.28	7.42
June	11.90	8.54	7.88	8.20	7.83	4.04	3.62	7.69	7.05	7.18	3/ 7.25
July	12.80	8.25	7.95	8.18	7.54	3.86	3.49	7.94	7.45	7.05	
Season average price:											
12 months 1/	12.80	9.05	7.91	8.57	8.04	6.53	3.75	7.27	6.83	7.35	(6.50-7.00)
5 months 2/	11.30	10.40	7.69	8.63	8.14	7.73	3.87	5.71	6.84	7.24	6.25
State:											
Arkansas	12.30	9.37	8.61	9.18	8.51	6.70	3.68	7.60	6.90	7.46	NA
California	14.10	7.35	6.65	6.96	6.43	5.33	3.18	6.72	6.15	6.27	NA
Louisiana	12.00	9.36	8.05	8.90	8.20	7.24	4.03	7.65	6.90	7.81	NA
Mississippi	12.70	9.14	8.66	9.53	8.88	7.10	3.91	7.90	7.02	7.57	NA
Missouri	12.30	9.50	8.65	9.49	8.70	7.05	3.57	7.41	7.22	7.54	NA
Texas	12.80	10.40	8.94	9.97	8.90	7.38	4.22	8.07	7.24	8.02	NA
United States	12.80	9.05	7.91	8.57	8.04	6.53	3.75	7.27	6.83	7.35	(6.50-7.00)
Type:											
Long	12.50	9.70	8.56	9.36	8.66	6.75	3.82	7.77	6.96	7.59	NA
Medium	13.30	8.06	6.91	7.13	6.66	5.87	3.55	6.36	6.47	6.71	NA

NA = Not available.

1/ Crop year--August-July. 2/ First 5 months of marketing year--August-December. 3/ Preliminary.

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

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

Year and type	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Simple average
\$/cwt, bagged													
Southwest Louisiana													
Long 1/:													
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		
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		
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		
Southwest Louisiana													
Medium 1/:													
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		
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	19.00	18.90	18.00	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	16.90		
California													
Medium 2/:													
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	15.75	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		
Short 2/:													
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		

1/ U.S. No. 2--broken not to exceed 4 percent. 2/ 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	July	Simple average
-----													
\$/cwt, bagged 1/													
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	8.63
1990/91	7.75	7.50	7.50	7.50	7.50	7.50	7.90	7.50	8.50	8.60	9.00		
Rice bran, f.o.b. mills:													
\$/ton 2/													
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	64.66
1990/91	72.25	52.40	50.75	52.00	56.00	66.40	51.75	48.65	57.65	47.35	50.25		
Rice millfeed, f.o.b. mills:													
\$/ton 2/													
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	19.98
1990/91	28.75	19.00	19.25	19.00	21.50	25.25	17.15	18.50	17.50	13.85	14.25		

NQ = Not quoted.

1/ U.S. No. 4 or better. 2/ 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:													
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	6.78
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	1/ 8.00		
New York:													
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	1/ 11.42		

1/ Preliminary.

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



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

Type	1986/87		1987/88		1988/89		1989/90		1990/91	
	\$/metric ton									
	BOT 2/	NPQ 3/	BOT	NPQ	BOT	NPQ	BOT	NPQ	BOT	NPQ
<b>100% 1st grade:</b>										
August	261	NA	270	NA	355	NA	504	NA	315	NA
September	256	NA	296	NA	355	NA	390	NA	312	NA
October	255	NA	319	NA	355	NA	374	NA	318	NA
November	253	NA	318	NA	355	NA	356	NA	314	NA
December	245	NA	312	NA	340	NA	355	NA	310	NA
January	249	NA	330	NA	335	NA	355	NA	361	NA
February	248	NA	355	NA	NA	NA	355	NA	378	NA
March	255	NA	349	NA	324	NA	343	NA	371	NA
April	257	NA	349	NA	348	NA	341	NA	343	NA
May	258	NA	348	NA	357	NA	332	NA	341	NA
June	257	NA	351	NA	383	NA	318	NA	343	NA
July	258	NA	355	NA	410	NA	310	NA		
Average	254	NA	329	NA	356	NA	361	NA		
<b>100% 2nd grade:</b>										
August	228	191	238	208	315	274	373	337	285	268
September	221	179	263	255	315	279	360	328	282	269
October	220	180	287	272	315	279	344	314	288	290
November	218	180	286	260	315	278	326	271	287	279
December	210	172	279	261	300	265	325	279	285	272
January	214	178	295	295	290	268	325	284	336	312
February	213	191	320	310	285	276	325	307	353	336
March	220	204	314	301	294	282	313	297	346	321
April	227	204	314	297	318	302	311	284	318	295
May	228	202	308	274	327	316	304	267	328	298
June	227	198	311	272	353	337	288	264	318	302
July	227	196	315	279	380	357	280	NA		
Average	221	190	294	273	317	293	323	NA		
<b>5% broken:</b>										
August	214	185	222	204	305	269	363	332	274	260
September	206	173	251	250	305	274	350	320	272	259
October	205	175	277	267	305	273	334	304	278	281
November	205	174	276	254	305	272	316	264	276	271
December	195	167	269	256	290	260	315	272	275	264
January	199	172	285	291	280	264	315	277	326	305
February	198	186	310	305	275	269	315	300	343	326
March	206	198	304	294	284	277	303	289	336	311
April	212	199	304	288	308	298	301	276	308	286
May	213	198	298	257	317	310	290	260	306	288
June	212	193	301	266	343	331	278	NA	308	292
July	212	191	305	273	370	351	270	NA		
Average	206	184	284	267	307	287	312	NA		

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 &amp; F ARAG quotations 1/

Type	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90	1990/91 3/
----- \$/metric ton -----							
U.S. no. 2 milled, 4%, container, F&S:							
August	500	477	299	316	325	354	306
September	485	475	285	349	303	357	287
October	493	475	305	NQ	303	324	284
November	496	475	303	415	310	314	314
December	496	470	249	413	300	312	325
January	496	454	224	442	292	338	333
February	496	455	224	496	290	356	349
March	496	455	224	493	290	348	364
April	496	383	224	455	292	342	372
May	496	325	240	420	317	338	380
June	495	291	267	329	356	336	386
July	490	286	277	355	368	333	
Average	495	418	260	408	312	338	
Thai SWR 100% Grade A, bulk 2/:							
August	382	265	303	300	380	448	401
September	360	264	297	312	380	433	395
October	350	283	292	349	378	407	402
November	302	310	275	341	375	384	395
December	294	290	260	338	375	376	400
January	292	290	260	365	360	379	418
February	290	270	262	395	360	395	439
March	280	269	276	396	360	394	428
April	274	258	282	383	365	371	398
May	265	255	275	377	400	379	398
June	265	280	273	366	412	396	390
July	250	283	268	383	437	399	
Average	300	276	279	359	382	397	
Thai SWR 100% Grade B, bulk 2/:							
August	333	237	243	250	322	386	311
September	317	239	230	280	320	369	310
October	301	239	225	316	320	359	330
November	272	260	219	303	320	331	321
December	260	245	215	304	320	322	304
January	258	240	218	328	315	328	359
February	254	235	236	357	320	350	386
March	255	234	244	359	325	343	365
April	241	223	246	340	328	326	335
May	244	222	241	340	360	309	344
June	244	229	238	311	389	308	347
July	228	230	235	324	402	307	
Average	267	236	232	318	337	336	

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 1991 is preliminary.

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

Appendix table 25--World rice supply and utilization

Year	Area harvested	Yield 1/	--Production 2/--		Exports 3/	Total use 4/	Ending stocks 5/	Stocks-to-use ratio 6/
	Million hectares	Mt/ha	Rough	Milled				
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	125.3	2.12	265.6	180.8	8.2	179.8	17.3	9.6
1965/66	124.0	2.05	254.2	173.3	7.9	172.6	18.0	10.4
1966/67	125.7	2.09	262.5	179.3	7.8	178.7	18.6	10.4
1967/68	127.0	2.19	277.8	189.4	7.2	187.1	20.9	11.2
1968/69	128.7	2.23	287.0	195.6	7.5	191.8	24.8	12.9
1969/70	131.4	2.25	295.9	201.6	8.2	200.2	26.1	13.1
1970/71	132.6	2.36	313.4	213.6	8.6	211.0	28.8	13.6
1971/72	134.9	2.35	317.5	216.4	8.7	216.8	28.4	13.1
1972/73	132.7	2.31	307.2	209.6	8.4	214.6	23.4	10.9
1973/74	136.4	2.45	334.5	228.0	7.7	222.9	28.5	12.8
1974/75	137.9	2.41	332.0	226.3	7.3	226.7	28.2	12.4
1975/76	143.0	2.51	358.7	244.0	8.4	233.3	38.9	16.7
1976/77	141.4	2.46	348.5	237.0	10.6	238.0	37.8	15.9
1977/78	143.6	2.58	370.4	251.7	9.6	245.6	43.9	17.9
1978/79	143.8	2.69	387.4	263.7	11.9	253.5	54.1	21.3
1979/80	141.5	2.67	378.3	258.0	12.6	259.3	52.8	20.4
1980/81	144.2	2.76	398.7	271.0	13.1	275.8	48.0	17.4
1981/82	144.9	2.85	412.4	280.5	11.8	284.5	44.0	15.5
1982/83	140.4	2.99	420.4	286.3	11.9	286.4	43.8	15.3
1983/84	144.1	3.14	452.8	308.1	12.3	304.7	47.2	15.5
1984/85	144.2	3.25	468.3	318.9	11.3	310.2	56.0	18.0
1985/86	144.9	3.23	468.6	318.9	12.6	319.4	55.4	17.3
1986/87	145.3	3.22	468.5	318.7	12.9	322.7	51.4	15.9
1987/88	141.6	3.27	463.5	314.2	11.9	320.0	45.6	14.3
1988/89	145.6	3.36	488.8	330.9	15.1	328.6	48.0	14.6
1989/90	146.6	3.47	508.1	344.0	12.0	337.5	54.5	16.1
1990/91 7/	147.1	3.49	513.9	348.1	12.7	346.4	56.2	16.2
1991/92 8/	NA	NA	508.7	344.2	12.9	345.5	54.9	15.9

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 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 1991.

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 (as of July 1991)
Million metric tons							
Production:							
Bangladesh	22.6	23.1	23.1	23.1	26.8	26.7	27.0
Burma	11.5	11.8	11.4	12.5	13.5	13.7	13.4
China	168.6	172.2	173.9	169.1	180.1	185.0	180.0
India	95.7	90.6	85.3	105.7	111.1	112.5	109.5
Indonesia	39.0	39.0	41.5	42.3	44.7	45.0	44.6
Japan	14.6	14.6	13.3	12.4	12.9	13.1	12.9
South Korea	7.9	7.9	7.6	8.4	8.1	7.7	7.8
Pakistan	4.4	5.2	4.9	4.8	4.8	4.7	4.8
Thailand	20.3	18.9	18.0	21.3	20.2	17.3	20.0
Subtotal	384.6	383.3	379.0	399.6	422.2	425.7	420.0
Australia	0.7	0.6	0.8	0.8	0.9	0.7	0.9
Brazil	9.8	10.6	11.8	11.0	7.2	9.8	10.0
EC-12	2.0	1.9	1.9	2.0	2.1	2.4	2.3
All others	65.3	66.1	64.1	68.2	68.7	69.4	68.3
Total non-U.S.	462.4	462.5	457.6	481.6	501.1	508.0	501.5
United States	6.1	6.0	5.9	7.3	7.0	7.0	7.1
World total	468.6	468.5	463.5	488.8	508.1	515.1	508.7
Ending stocks 3/:							
Total foreign	52.9	49.7	44.6	47.1	53.6	55.8	54.1
United States	2.5	1.7	1.0	0.9	0.9	0.8	0.8
World total	55.4	51.4	45.6	47.9	54.5	56.6	54.9

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 1/	1992 2/ (as of July 1991)
	1,000 metric tons					
<b>Exports:</b>						
United States	2,444	2,247	2,973	2,424	2,400	2,300
Argentina	150	160	130	70	75	60
Australia	338	417	450	470	470	500
Burma	493	368	456	186	400	500
China	1,020	698	320	300	550	500
Taiwan	240	104	68	50	200	100
EC-12	981	920	963	969	1,040	1,150
Egypt	105	108	100	32	85	125
Guyana	69	56	26	30	30	20
India	350	200	450	420	400	400
Indonesia	100	0	104	50	0	0
North Korea	154	199	175	75	0	0
Pakistan	1,226	950	779	904	1,200	1,200
Thailand	4,355	4,791	6,037	3,927	4,200	4,500
Uruguay	190	244	251	250	250	350
Vietnam	153	97	1,400	1,500	1,000	800
Other	560	371	419	387	351	404
World total	12,928	11,930	15,101	12,044	12,651	12,909
<b>Imports:</b>						
Bangladesh	746	187	400	100	100	100
Brazil	200	64	180	405	600	500
Canada	85	135	148	130	160	170
China	554	310	1,200	59	50	50
Cuba	150	200	200	200	150	150
Eastern Europe	320	290	273	284	300	310
EC-12	1,198	1,210	1,263	1,204	1,115	1,040
India	5	650	500	0	0	0
Indonesia	155	33	412	60	300	200
Iran	1,000	400	1,000	850	1,000	1,000
Iraq	524	603	542	360	200	300
Ivory Coast	445	212	305	300	325	350
North Korea	0	0	0	0	200	200
Kuwait	90	90	90	90	90	90
Madagascar	125	70	130	155	130	200
Malaysia	280	350	360	360	470	350
Mexico	0	0	189	130	200	200
Nigeria	400	240	300	200	200	250
Peru	211	17	162	246	350	350
Philippines	0	181	195	630	250	300
Saudi Arabia	500	431	525	525	530	530
Senegal	355	360	400	390	400	400
South Africa	268	237	280	300	350	375
Sri Lanka	102	180	292	200	150	200
Syria	120	120	140	140	140	140
Turkey	110	170	200	210	200	250
U.A. Emirates	222	220	220	220	220	220
USSR	598	498	600	400	400	500
Vietnam	344	175	50	0	0	0
Other	3,338	3,788	3,691	3,529	3,582	3,248
Unaccounted 3/	483	509	854	367	489	936
World total	12,928	11,930	15,101	12,044	12,651	12,909

1/ Preliminary. 2/ Forecast. 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, 1960/61-1991/92

Year 1/	-----U.S. share of world-----		
	Production	Exports	Ending stocks
	Percent		
1960/61	1.1	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 2/	1.4	18.9	1.6
1991/92 3/	1.4	17.8	1.5

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	World ending	U.S. exports
	to world	stocks to world	to foreign
	consumption	consumption	consumption
	Percent		
1960/61	4.2	6.7	0.5
1961/62	4.3	5.7	0.7
1962/63	4.9	8.2	0.8
1963/64	4.7	9.8	0.8
1964/65	4.6	9.6	0.9
1965/66	4.6	10.4	0.8
1966/67	4.4	10.4	1.0
1967/68	3.8	11.2	1.0
1968/69	3.9	12.9	1.0
1969/70	4.1	13.1	0.9
1970/71	4.1	13.6	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	21.3	0.9
1979/80	4.9	20.4	1.2
1980/81	4.8	17.4	1.1
1981/82	4.1	15.5	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	15.9	0.8
1987/88	3.7	14.3	0.7
1988/89	4.6	14.6	0.9
1989/90	3.6	16.1	0.7
1990/91 2/	3.6	16.2	0.7
1991/92 3/	3.7	15.9	0.7

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

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

Crop year	Regular milled	Brown	Parboiled	Rough	Brokens	Other	Total 2/
1973/74	1,080.1	165.2	345.7	0.2	11.3	1.0	1,603.6
1974/75	1,388.3	546.5	242.5	0.3	14.3	2.5	2,194.4
1975/76	777.3	535.8	406.0	0.3	11.6	0.9	1,731.8
1976/77	1,215.3	346.7	459.2	32.5	37.7	5.7	2,097.0
1977/78	1,275.8	232.7	502.5	132.5	87.1	39.4	2,270.2
1978/79	1,388.8	276.1	627.3	90.6	20.8	27.8	2,431.4
1979/80	1,461.9	475.4	598.4	54.5	40.1	75.5	2,705.9
1980/81	957.7	1,202.7	781.7	13.5	18.0	54.0	3,027.6
1981/82	941.8	502.6	1,000.9	18.7	5.9	39.1	2,681.9
1982/83	954.1	354.3	846.5	188.9	12.7	35.1	2,218.7
1983/84	882.4	334.3	821.8	104.3	37.6	89.7	2,270.2
1984/85	927.7	166.2	630.8	101.1	46.8	81.4	1,954.2
1985/86	891.6	309.6	523.8	55.7	80.1	57.7	1,918.6
1986/87	1,484.0	278.5	596.4	259.0	5.7	56.2	2,679.8
1987/88	1,289.6	178.1	652.9	36.8	132.7	0.1	2,290.3

1/ All rice is reported on a milled-equivalent basis. 2/ Numbers may not add because of rounding.

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
									Percent
-----1,000 metric tons-----									
1975	747	0	48	0	0	795	1,419	2,217	36
1976	509	0	101	0	0	610	1,340	1,953	31
1977	691	0	15	0	0	705	1,614	2,317	30
1978	530	0	50	0	0	580	1,696	2,276	25
1979	486	0	42	0	0	528	1,868	2,396	22
1980	540	0	168	0	0	708	2,247	2,955	24
1981	360	0	452	0	0	812	2,360	3,172	26
1982	374	0	14	0	0	388	2,523	2,911	13
1983	475	0	328	0	0	803	1,473	2,276	35
1984	464	0	571	49	0	1,084	1,209	2,293	47
1985	577	0	359	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 4/	374	0	663	0	0	1,037	1,464	2,501	41

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/ USDA/Foreign Agricultural Service. 3/ Estimated. 4/ Preliminary.

Sources: Agricultural Stabilization and Conservation Service, and Foreign Agricultural Service, USDA. Table provided by Mark Smith, and Karen Ackerman, ERS-CED, (202) 219-0822.

