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United States
Department of
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Economic
Research
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April 1993

Rice

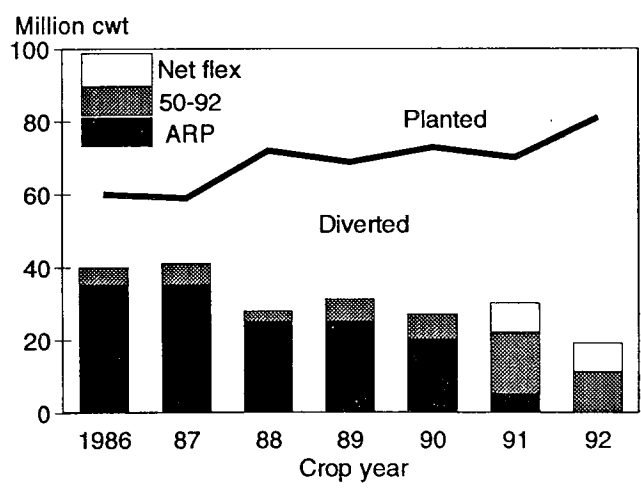
Situation and Outlook Report

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**U.S. Rice Acreage: Percent Planted
and Diverted**



**How much will a 5-
percent ARP reduce rice
plantings in 1993?**

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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. 1993 Rice Plantings Expected Down; 1992/93 Supplies Reach Near-Record

Prospective Plantings report estimated U.S. 1993 rice plantings at 3.125 million acres, based on farmers' early March intentions. Results of the intentions survey are the first indication of field crop plantings.

Indicated 1993 plantings, according to the March report, are down 1.5 percent from 1992. Producers are responding, at least in part, to the change in the Acreage Reduction Program (ARP). In 1992, rice farmers were not required to keep any of their base acreage out of production in order to be eligible for program benefits. For 1993, the ARP was increased to 5 percent. In addition to the ARP change, producer planting decisions are based on weather factors and expected net returns for rice and alternative crops.

Producers have the option of using the 50/92 program if they do not want to plant all of their permitted acreage. Since 1985, participation in the 50/92 program has increased considerably. Cutbacks in acreage enrolled in the 50/92 program would offset some of the reduction in acres planted due to an increase in the ARP level. Also, increased rice seeding on flex acres would alter a full response to an increased ARP level.

All States except Arkansas and California indicated that their rice farmers would reduce rice plantings from last year. The higher ARP and relatively low prices at planting are major factors prompting the decline. Area in Louisiana is expected down 10 percent; Mississippi, 5 percent; Missouri, 2 percent; and Texas, down by 5 percent. Arkansas rice producers indicated they would seed the same rice acreage in 1993 as they did a year earlier.

California is the only one of the six estimating States to show an increase in acreage. Improved water availability, due to the ending of the 6-year drought, suggests less 1993 acreage will be enrolled in 50/92 and that more permitted acres will be planted in rice.

Farmers may not plant as much rice as indicated in the March survey. Market prices are currently less favorable for rice plantings than a year ago. In addition, heavy rainfall throughout most of the southern rice-growing area in early April got planting off to a slow start. Thus, market

and weather conditions could cause rice plantings to fall from the March estimate. NASS will survey farmers again in early June and those results will be published in the *Acreage* report scheduled for release June 30.

Near-record 1992 U.S. rice output boosted U.S. rice supplies to high levels. Although domestic use continues to grow and exports are forecast higher than a year ago, the increase in supplies is forecast to exceed growth in use and stocks are expected to build. Carryout stocks for 1992/93 are expected to increase to 38.3 million cwt, 40 percent above 1991/92. The stocks-to-use ratio for 1992/93 is expected to be 22 percent, up from 17.1 percent for the previous year.

The increase in U.S. rice supplies and substantial downturn in international prices is putting heavy downward pressure on U.S. prices. Rice prices at the farm level are forecast to range between \$6.10 and \$6.30 per cwt in 1992/93, below this past year's \$7.58. Except for 1986/87, the season-average price has not been this low since the early 1970's.

With 1992/93 supplies higher and prices lower, U.S. exports are projected up 14 percent from last year's low to 76 million cwt. U.S. market share of world trade is forecast to increase to 17 percent in calendar 1993, up from 14 percent in 1992. However, U.S. rice is expected to face stiff competition from Asian exporters, particularly Thailand, where rice is currently entering world markets at a significant discount to U.S. prices.

World rice production in 1992/93 is forecast at a record 351.8 million tons (milled), about 1 percent above 1991/92. Increases in China, Indonesia, Japan and the United States account for much of the gain.

Abundant supplies in the major consuming countries have reduced the world rice trade outlook, despite rising global consumption. World trade is forecast at 14.3 million tons in calendar 1993, down 4 percent from 1992. Lower projected imports for Brazil, Indonesia, Peru, and Saudi Arabia account for the majority of the decline in world trade.

Despite slightly lower crops in the major exporting countries of Pakistan, Thailand, and Vietnam, global exportable supplies remain abundant. When combined with a declining import market, the outlook is for continued fierce competition in world trade and for continued pressure on world rice prices.

U.S. Outlook for 1993/94

1993 Planting Prospects

In early March, farmers indicated they plan to plant 3.125 million acres to rice in 1993, down 1.5 percent from 1992, according to the *Prospective Plantings* report. Producers are responding, at least in part, to the change in the Acreage Reduction Program (ARP). In 1992, rice farmers were not required to keep any of their base acreage out of production in order to be eligible for program benefits. For 1993, the ARP was increased to 5 percent.

Since participation in the rice program is around 95 percent and market prices on average are not remunerative, rice acreage would be expected to decrease around 5 percent based solely on the change in the ARP level. In addition to the ARP change, producer planting decisions are also based on weather factors and expected net returns for rice and alternative crops.

Producers have the option of using the 50/92 program if they do not want to plant all of their permitted acreage. Since 1985, participation in the 50/92 program has increased considerably. Cutbacks in acreage amount in the 50/92 program would offset some of the reduction in acres planted, due to an increase in the ARP level. Also, the 1990 farm legislation introduced planting flexibility. Producers are given the option of planting the base crop or other crops on 15 percent of their base (NFA or normal flex acres), but no longer receive deficiency payments on this land. Production from NFA is, however, eligible for loan programs, including marketing loans. Therefore, returns are based on market prices and marketing loans, but not on the target price.

In 1991 and 1992, most rice producers opted not to plant rice on their NFA because net returns favored other crops or not planting at all. An increase in rice planting on flex acres would occur if producers expect future commodity prices to shift in favor of higher net returns for rice -- currently, market prices are less favorable for rice plantings than a year ago. Also, increased rice seeding on flex acres would occur if costs of producing rice have decreased, thus improving expected net returns. Rice acreage is limited by availability of irrigation water (especially in California) and the need in southern States for disease-preventing crop rotations.

In California, where 12 to 14 percent of U.S. rice is planted, a 6-year drought has just ended, improving the availability of irrigation water. California is the only one of the six estimating States to show an increase in acreage. Water supplies in California are expected to be adequate in most growing areas.

Governor Pete Wilson officially declared the drought over following the record snowstorms and drenching rain that soaked the State throughout the winter months. National Weather Service data shows that between July 1, 1992, and early March 1993, California rainfall measured 22.36

inches compared to 12.4 for the same period a year earlier and normal precipitation of 14 inches. Private publications reported that because of the heavy rain and adequate snow pack, California growers should have full deliveries from the major irrigation systems. Record snowfall improved inflow into Shasta Dam on the Sacramento River and Oroville Dam on the Feather River where most California rice growers get their water.

California's 1993 indicated plantings of 440,000 acres substantially exceeds the 351,000 acres planted in 1991 and the 394,000 acres planted in 1992. Although many California rice farmers have senior water rights, acreage was still cut back because of the drought. Improved water availability suggests less 1993 acreage will be enrolled in 50/92 and that a greater proportion of permitted acres will be planted in rice. California acreage idled under 50/92 peaked in 1991 at 154,000 acres and declined to 119,000 acres idled in 1992. California NFA planted to rice in 1992 amounted to 18 percent of total California NFA, compared with a national average of 29 percent.

All other States except Arkansas indicated that their rice farmers would reduce plantings from last year. The higher ARP and relatively low prices at planting are major factors prompting the decline. Area in Louisiana is expected down 10 percent; Mississippi, 5 percent; Missouri, 2 percent; and Texas, down by 5 percent.

Arkansas rice producers, however, indicated they would seed the same rice acreage in 1993 as they did a year earlier. Unchanged area in Arkansas, the largest rice-producing State, was unexpectedly high, and was the major cause of higher-than-expected U.S. rice area.

A higher ARP and no change in planted acres suggests -- (1) rice gains on NFA, (2) a greater share of rice payment acres planted to rice, and/or (3) less 50/92 acres. Relative prices suggest neither (1) nor (2) would be likely. Arkansas acreage idled under 50/92 peaked in 1991 at 132,000 acres and decreased to 93,000 acres in 1992. If further reductions in 50/92 idled acreage occur in 1993, this would offset some of the reductions in acres planted due to an increase in the ARP. Arkansas NFA planted to rice in 1992 amounted to 39 percent of total Arkansas NFA, compared with a national average of 29 percent.

Long grain acreage shows a decrease of 3 percent in intended acreage, whereas, medium grain acreage is up 4 percent, and short grain acreage is up 22 percent. Long grain acreage continues to make up about 75 percent of the total. Medium grain acreage accounts for nearly 25 percent of all rice acreage with short grain making up less than 1 percent. Nearly all long grain rice is grown in the south, while around half of medium grain rice and nearly all of short grain is planted in California.

Improved water availability in California spurred the upturn in medium and short grain acreage there. California is regaining its share of medium grain acreage that existed prior to the drought. In 1991, California growers planted 43 percent of all medium grain acreage, in 1992 - 49 percent, and

in 1993 indications point to 53 percent. Arkansas farmers have held medium grain acreage steady, while Louisiana producers have lowered medium grain acreage.

The *Prospective Plantings* report is only the first indication of field crop plantings, based on intentions surveyed in early March. Changes in weather conditions and relative prices between early March, when operators were surveyed, and planting time can alter producers' initial intentions, influencing actual planted acreage. For 1993 crops, more information on planted acreage will be published in the *Acreage* report, which is scheduled for release on June 30. That report will be based on surveys conducted in early June, when most crop acreages will have been established.

Wet Weather Delays Planting

Heavy rainfall throughout most of the southern rice-growing region in early April got planting off to a slow start. As of April 18, wet weather had delayed rice planting in Texas where only about 22 percent of rice acreage had been seeded, compared with a 5-year average of 63 percent. In Louisiana, planting progress reached 42 percent, compared with a 46 percent 5-year average. Planting was just getting started in Arkansas, Mississippi, and Missouri. California planting has not yet begun.

The total U.S. rice crop was about 13 percent complete April 18, behind the 5-year average of 26 percent.

1993 Rice Program

As mentioned above, program announcements--including acreage reduction program levels (ARP's) and estimated deficiency payment rates--have a major effect on the acreage planted to program crops. Provisions of the 1993 rice program, the third under the Food, Agricultural, Conservation, and Trade Act of 1990, were announced on January 29, 1993.

Provisions of the 1993 program:

- The acreage reduction program was set at 5 percent, compared with 0 percent for the 1992 crop and 5 percent for 1991.
- The established target price will be \$10.71 per cwt, unchanged from the past 3 years.
- The national-average loan and purchase rate will remain at \$6.50 per cwt (the legislative minimum), unchanged from the past 4 years.
- The differential between price support rates for different classes of whole-kernel milled rice will remain at \$1.00 per cwt, unchanged from the past 6 years.
- Advance deficiency payments will be 50 percent of the estimated deficiency payment rate of \$4.21 per cwt, compared with an advance of 40 percent of an estimated rate of \$3.51 per cwt for the 1992 crop. For 1992, the final total deficiency payment rate was \$4.21 per cwt. This estimated rate is the minimum guaranteed payment level under the 50/92 program.

Deficiency Payments for 1992 Crop Rice Announced in February

Eligible rice producers received about \$630 million in deficiency payments for the 1992 crop of rice. Deficiency payments are required when the national-average market price received by producers during the first 5 months (August through December) of the marketing year is below the established target price.

The total payment rate is based on the difference between the target price, \$10.71 per cwt, and the higher of the 5-month market price or the national average loan rate of \$6.50 per cwt. The market price is \$6.44 per cwt, resulting in a total deficiency payment rate of \$4.21 per cwt. An advance payment of \$1.76 per cwt was made earlier to eligible producers who requested advances, resulting in advance payments of \$264 million.

The Current Situation

U.S. Supply Up Substantially

U.S. 1992 rice production increased 14 percent from a year earlier to 179.1 million cwt. This is the largest U.S. rice crop since 1981 when record acreage boosted output to 183 million cwt.

Average U.S. yields for 1992 at 5,722 pounds per acre are 903 pounds higher than the average for 1981 and are second only to the record high of 5,749 pounds per acre achieved in 1989.

Harvested acreage for 1992 at 3.175 million acres is the third highest acreage recorded and represents a 10 percent rise in acreage over 1991. Contributing factors include a 0 percent ARP compared to 5 percent in 1991; favorable weather and relatively high prices at planting time; and increased water availability in California.

U.S. 1992/93 rice supplies are projected up 13 percent from a year ago to 212.1 million cwt. This is the highest since 1986/87 when record stocks contributed significantly to record supply.

U.S. Rice Prices Continue To Plummet

The increase in U.S. rice supplies and substantial downturn in international prices is putting downward pressure on U.S. prices. However, rice futures moved higher in early April amid concern about 1993 planting delays in the southern States. Rice prices at the farm level are forecast to range between \$6.10 and \$6.30 per cwt in 1992/93, below this past year's \$7.58. Except for 1986/87, the season-average price has not been this low since the early 1970's. The 1991/92 price of \$7.58 per cwt was the highest since the marketing loan went into effect in 1985/86.

Although season average rice prices were relatively high in 1991/92, the monthly pattern shows that prices escalated early in the marketing year and then started to plummet dur-

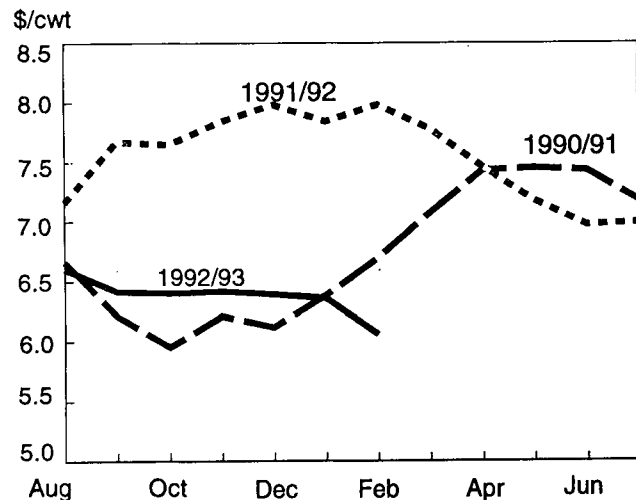
ing the last half of the year. That pattern of sliding prices has continued into the 1992/93 marketing year.

U.S. prices were pushed up early in the 1991/92 marketing year by higher world prices, reduced U.S. supplies, and expectations of strong demand in domestic and export markets. In addition, heavy purchases of U.S. rough rice by Brazil and Mexico added strength to farm prices. When expectations of strong export demand were not realized, prices fell precipitously. As farmers began to unload their 1991 crop and prospects for a large 1992 crop were becoming evident, prices moved even lower. Also, production by Asian exporters in 1992/93 was up sharply, setting the stage for lower international prices.

Generally, large Asian rice supplies and reduced world trade in 1992/93 led to fierce price competition among the major rice exporting countries. Aggressive export pricing from China and Vietnam pressured Thai prices and the overall level of international prices moved much lower. This sharply reduced the floor for U.S. prices, which is reflected in the weekly USDA announcement of a calculated world price used in determining the level of loan repayment (Appendix Table 11). For example, the calculated world price was \$4.72 per cwt for long grain rough rice in early April 1993, compared with nearly \$6.00 per cwt in August 1992, the beginning of the 1992/93 marketing year.

The U.S. price is heavily influenced by the overall level of world prices. Over 40 percent of U.S. rice is exported and the United States has a smaller share (15 to 20 percent) of world trade than the combined share of lower-priced exporters such as Thailand and Vietnam. In addition to following world prices, U.S. rice prices move in the opposite direction from the U.S. stocks-to-use ratio. Therefore, for a given level of world prices, U.S. prices will move higher if U.S. supplies tighten relative to use and will move lower if U.S. supplies increase relative to use. Other factors influencing the movement of prices include producer marketing patterns and expectations by millers, exporters, and producers of future price changes.

Figure 1
U.S. Rough Rice Prices Plummet in 1992



U.S. Exports Projected To Rebound

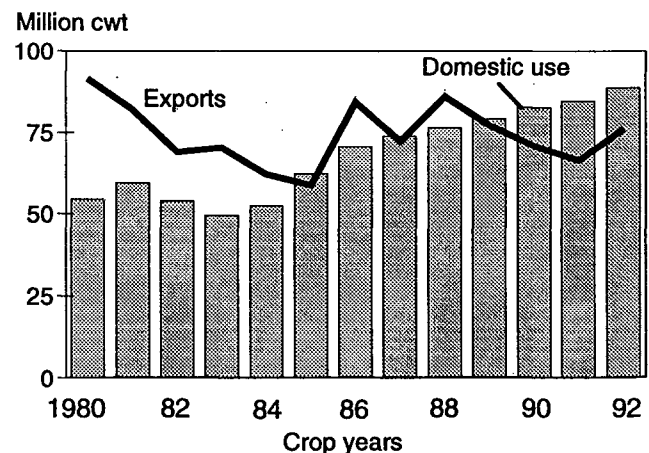
With 1992/93 supplies higher and prices lower, U.S. exports are projected up 14 percent from last year's reduced level to 76 million cwt. U.S. exports for the 1991/92 marketing year, estimated at 66.4 million cwt, were down 6 percent from 1990/91 and the lowest since 1985/86.

According to the *Export Sales Report*, total exports and commitments through April 15, 1993, are running 168,700 tons or 10.3 percent ahead of last year. Current U.S. Government program rice exports are running behind last year suggesting that this year's faster export pace is driven by higher commercial sales, particularly to Iran, Mexico, Netherlands, and Saudi Arabia. Exports to Brazil and Peru are projected significantly below last year.

In 1992, Iran returned to the U.S. market to purchase rice directly rather than through a third country for the first time since 1982. Iran loosened controls on private-sector grain trade making it easier for private companies to purchase grain directly from international markets. In addition, non-price factors such as reduced travel restrictions to the United States and the comparatively higher-quality American rice have combined to make U.S. rice purchases more attractive to Iranian companies. According to the *Export Sales Report*, Iranian purchases of U.S. rice for the 1992/93 marketing year are at 102,700 tons as of April 15.

U.S. rice export prospects to Brazil for calendar 1993 are greatly reduced from previous years in light of Brazil's ongoing economic recession coupled with a 15 percent import duty on U.S. origin rice (that will be revised downwards to 10 percent after July 1, 1993). In marketing year 1990/91 Brazil imported 228,000 tons of rice from the U.S., followed by 150,000 tons in 1991/92. Through April 15 of this marketing year the *Export Sales Report* indicates total commitments of only 300 tons to Brazil. Similarly, current U.S. export sales to Peru are only 14,000 tons, well behind last year's 40,000 tons.

Figure 2
U.S. Rice Use



1992 forecast. Residual not included.

The outlook for U.S. Government program rice exports in marketing year 1992/93 is for a final total at or below last year. The U.S. Government relies on three principal export programs for rice in international markets: The Export Enhancement Program (EEP), government GSM credit programs, and PL 480 sales.

In fiscal 1992, program exports were a factor in 34 percent of total U.S. rice exports, up from only 22 percent in 1991, on the strength of increased EEP activity. EEP allocations for 1993 are 755,100 tons compared with only 534,900 tons for the last year. However, despite the larger allocation, fiscal 1993 EEP sales of 185,844 tons as of April 15, 1992, are running behind the 278,700 tons committed at this time last year.

Final 1992/93 marketing year EEP sales may approach last year's total with little prospect for sales above 400,000. In part, the poor financial situation of the former Soviet Union (FSU) prevents higher sales.

As of March 26 government short-term credit (GSM-102) allocations for rice purchases for fiscal 1993 totaled \$86.5 million. Mexico (\$20 million), Senegal (\$17 million), and

Trinidad/Tobago (\$10 million) are the major recipients, with the remainder going to Algeria, Colombia, the Ivory Coast, South Africa, Tunisia, and the Czech Republic. Through March 26, applications accepted for GSM 102 total only \$30.9 million (36 percent). Last year by March 27, \$42.7 million (53 percent) in GSM-102 applications had been accepted out of allocations totaling \$80.9 million.

The fiscal 1993 PL 480 program for rice (as of the second quarter) is 297,500 tons compared with last fiscal year's total of 348,200 tons. The major recipient of U.S. PL 480 program rice for fiscal 1993 is Jamaica with an allocation of 66,800 tons; however, it is unlikely that Jamaica will accept more than a third of this amount due to competition from Guyana (see box 1).

U.S. Government food aid donations are used on an irregular basis but can be important in any given year. In February, the U.S. Government announced a food aid allocation destined for Armenia that included 27,000 tons of rice; however, no shipping date was given. This was followed on March 12, 1993, by an announcement that it was donating 87,000 tons of rice to Russia as food aid for fiscal 1993 (October-September). In early April, the Commodity Credit Corporation invited offers for 57,000 tons of rice to be shipped to Russia in four installments before June 30, 1993. This would leave an additional 30,000 tons of food aid for Russia to be shipped before the end of September.

During fiscal 1992, 55,000 tons of rice were sold to the FSU under EEP, while \$4.96 million were shipped under GSM-102 credit guarantees. In addition, 22,400 tons were given to the FSU in the form of food aid.

In summary, U.S. Government program sales are lagging behind last year's pace in all categories except food donations. However, current exports are on line with USDA's 1992/93 marketing year forecast of 76 million cwt. Key market factors to watch for during the remainder of the 1992/93 marketing year are further Iranian purchases of U.S. rice and continued aggressive price competition between Thailand and the United States in the high-quality long-grain rice market and between China and Vietnam in the low-quality long-grain market.

Figure 3

U.S. Government Programs' Export Share

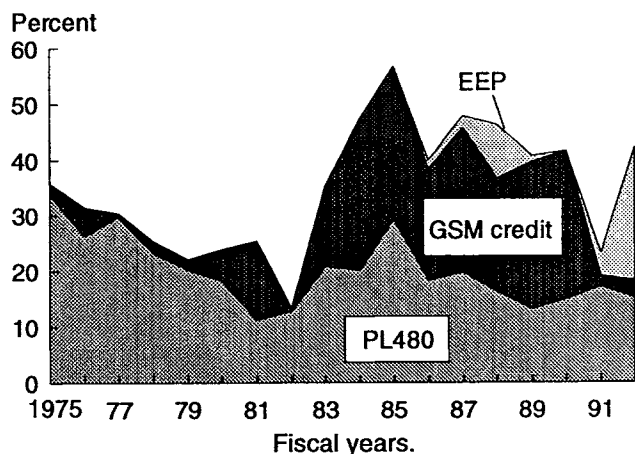


Table 1--Fiscal Year: Rice EEP allocations and sales, April 20, 1993 1/ 2/

Country	FY93			Average bonus	FY93				Average bonus
	Allocation	Sale 04/20/93	Remainder		Allocation	Sale 04/20/93	Sale final	Remainder	
	-----1,000 tons-----			\$/mt	-----1,000 tons-----				\$/mt
Algeria	50.0	2.0	48.0	63.50	40.0	0.0	18.0	22.0	66.13
Eastern Europe 3/	155.1	24.1	131.4	88.72	103.9	38.0	54.4	49.5	117.20
FSU-12	150.0	0.0	150.0	0.00	100.0	25.0	55.0	45.0	72.86
Israel	25.0	25.0	0.0	71.75	15.0	0.0	15.0	0.0	77.25
Jordan	60.0	30.0	30.0	63.87	75.0	15.0	15.0	60.0	49.00
Turkey	235.0	94.2	140.9	37.68	201.0	200.8	200.8	0.3	49.69
Lebanon	45.0	11.0	34.0	64.15	0.0	0.0	0.0	0.0	0.00
Morocco	35.0	0.0	35.0	0.00	0.0	0.0	0.0	0.0	0.00
Total	755.1	186.3	569.3	54.23	534.9	278.7	358.1	176.8	65.45

1/ Fiscal year runs October-September. 2/ Recent initiative for 750,000 tons announced 10/30/92 running through 12/31/93. 5,100 tons were purchased during FY93 by EE under an earlier EEP allocation. 3/ Eastern Europe includes Bulgaria, Hungary, Yugoslavia, Romania, Czechoslovakia, and Poland. Baltics which includes Estonia, Latvia, and Lithuania added on 10/14/92.

Source: Calculated from EEP database of FAS press releases.

U.S. Domestic Use Continues To Grow

Since the mid-1980's, U.S. domestic use has steadily moved upward. Large increases in the Asian and Hispanic segments of the U.S. population has fueled growth. Per capita consumption of rice by Asian- and Hispanic-Americans far exceeds the U.S. average. A large share of this consumption, however, has been supplied by imports of the preferred aromatic rices such as Thai Jasmine.

Changing tastes and preferences of the U.S. population in general have also spurred growth in domestic use. Americans are adding more grain-based foods to their diets to lower fat and cholesterol intake. The perception of rice as a healthy, low-calorie, versatile, and easily prepared food has prompted the introduction of a multitude of new products which are increasing consumers' options and encouraging more frequent use of rice. In recent years, food use has grown about 3.5 percent per year.

Although food use continues to grow at a steady rate, brewers' use leveled off during the past few years and recently started to decline. Beer sales in general have slowed over the past decade. More recently, premium beer sales have been off. Rice is mostly used in the premium beers.

USDA's biannual milled-rice distribution survey for marketing year 1990/91 is nearly completed. Preliminary results of the survey show continued growth in total and per capita U.S. rice consumption. Processed food use is the fastest growing category. (See "Survey Shows Continued Growth in the Domestic Market" in this issue.)

Stocks Expected To Build

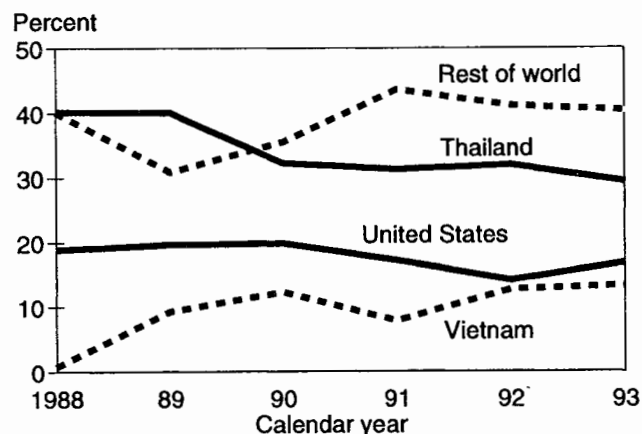
Despite the forecast resurgence of U.S. exports and continued strong domestic use, growth in supplies is forecast to exceed growth in use. Carryout stocks for 1992/93 are expected to increase to 38.3 million cwt, 40 percent above 1991/92. The stocks-to-use ratio for 1992/93 is expected to be 22 percent, up from 17.1 percent for the previous year, and 6.9 percentage points above 1990/91. Stocks remained between 24.6 and 27.3 million cwt from 1988/89 through 1991/92 and the stocks-to-use ratio ranged between 15.1 and 17.1 percent.

U.S. Projected to Regain Market Share in Calendar 1993 Despite Projected Lower World Trade

Abundant supplies in major exporting countries, combined with weak demand from the major importing countries on the strength of projected record global production in 1992/93, suggest a tightening of world trade, continued pressure on declining world prices, and a competitive global rice market in calendar 1993.

World trade is forecast at 14.3 million tons in calendar 1993, down 4 percent from 1992. Lower projected imports for Brazil, Indonesia, Peru, and Saudi Arabia account for the majority of the decline in world trade.

Figure 4
World Market Share by Major Exporter



1992 forecast; 1993 projected.

Global exportable supplies remain abundant despite slightly lower crops in the major exporter countries of Pakistan, Thailand, and Vietnam. Thailand is projected to retain its role as the world's leading rice exporter; however, aggressive export pricing from China and Vietnam in the low-quality long-grain market should continue to undercut Thailand's traditional share of low-quality rice exports. Subsequently, Thailand should continue to reorient its export initiatives more aggressively towards the intermediate-quality and high-quality long-grain rice markets where it competes directly with the United States for sales opportunities.

Lower U.S. export prices are expected to help increase U.S. exports and market share marginally in calendar 1993. However, U.S. rice is expected to face stiff competition from Asian exporters, particularly Thailand, whose rice is currently entering world markets at a significant discount to U.S. prices.

U.S. rice exports are projected up 14 percent to 2.4 million tons for calendar 1993. Given a projected lower volume of global trade for 1993, this implies a rising market share. U.S. market share of world trade is forecast to increase to 17 percent from 14 percent in 1992, the lowest share in 30 years.

The next opportunity for a break from the current bearish global rice market will come in mid-1993 when new crop information becomes available for the major Asian producing countries. Much of their production is weather driven and depends heavily on the Asian monsoons that usually occur between June and September.

DEVELOPMENTS IN CARICOM RICE POLICY

Changes in the Caribbean Common Market (CARICOM) trade policy have reduced the amount of U.S. rice entering member-country markets. CARICOM importers have been substituting duty free rice from member country Guyana for U.S. rice. In addition, allegations have emerged that Caribbean-based traders have abused Guyana's special status by transshipping rice of non-Guyanese origin through Guyana into the CARICOM market.

Background

The CARICOM trade bloc was formed in 1973 to promote economic development and cooperation among member countries. Members include Antigua and Barbuda, Bahamas, Barbados, Belize, Dominica, Grenada, Guyana, Jamaica, Montserrat, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and Grenadines, and Trinidad and Tobago.

In February 1991, CARICOM implemented a common external tariff (CET) on goods entering member countries. Certain countries (Jamaica, Dominica, and Antigua and Barbuda) were initially granted a 1-year reprieve from applying the CET; however, by February 15, 1992, Jamaica was applying the full tariff rate to rice imports.

In accordance with the CET, a 30 percent tariff is applied to milled, semi-milled, milled parboiled, and broken white rice imports entering CARICOM. This 30-percent CET applies equally to commercial and concessional rice imports. A 15-percent tariff is applied to in-the-husk parboiled, and semi-milled parboiled rice imports. For trade within CARICOM, tariffs on rice are zero.

Trade Implications

From among the member countries, only Guyana, Jamaica, and Trinidad and Tobago have any appreciable rice production. However, both Jamaica and Trinidad and Tobago have annual consumption far in excess of annual production. Guyana is the sole CARICOM country that produces an exportable surplus of rice. Guyana's rice exports have been very erratic over the past decade, ranging between 29,000 and 69,000 tons. In calendar 1992 exports were 55,000 tons.

Guyana's membership in CARICOM gives it duty-free status for rice exports to all CARICOM countries. In addition, Guyana enjoys preferential trade status with the EC, whereby its rice exports to the EC are taxed at a preferential import levy that is less than 50 percent of that charged to U.S.-origin rice entering the EC (See box 2).

The CARICOM trade bloc has been an important source of import demand for rice from the U.S., particularly the more populous island countries of Jamaica and Trinidad and Tobago. The region's imports of rice from the U.S.

grew from 88,000 tons in 1986/87 to over 120,000 tons by 1990/91.

However, the implementation of CARICOM's CET in 1991 resulted in the substitution of rice imports from Guyana with those from the U.S. CARICOM imports from the U.S. dropped by nearly 30,000 tons in 1991/92 to about 92,000 tons. The outlook for the U.S.'s 1992/93 marketing year rice exports is for little change.

The negative impact of the CET on U.S. rice exports is felt the strongest in trade with Jamaica. Through April 8 of the 1992/93 marketing year, Jamaica has purchased only 19,700 tons of rice from the U.S. compared with 50,000 tons on the same date a year earlier.

Jamaica has refrained from applying the full CET of 30 percent on concessional rice imports; however, they still do not enter duty free. U.S. PL480 concessional rice exports to Jamaica must face a 15-percent tariff. The fiscal 1993 PL480 Title I rice allocation to Jamaica is 66,800 tons. As of April, only 17,000 tons of this allocation had been purchased.

Allegations of Unfair Trade Practices

The uncompetitive trade position of the U.S. in the face of the CET is aggravated by allegations of unfair trade practices in the region. Allegations have emerged recently concerning third-country-origin rice (predominantly from Surinam, but also potentially from Venezuela and other South American countries) passing through Guyana on its way duty free into CARICOM or the EC via the Curacao connection.

Other allegations have surfaced concerning unfair trade arrangements between Guyanese and Jamaican traders whereby rice of extremely poor quality is accepted into the Jamaican market at the expense of non-CARICOM imports.

Finally, a further problem associated with the CET is a stipulation that if CARICOM countries' supplies fall below 75 percent of needs for brown or parboiled rice, then imports of the rice in short supply should not be charged the CET until supplies exceed the 75 percent. Apparently this stipulation is being ignored, and imports of both brown and parboiled rice are being charged the CET despite insufficient stocks.

In response to CARICOM'S CET, as well as the numerous allegations of unfair trade practices surrounding the CARICOM trade bloc, representatives from the U.S. rice industry, the FAS International Trade Policy Branch, and the U.S. Trade Representative's Office have made several trips to the region to meet with member-country governments in order to resolve these difficulties. Also, the U.S. rice industry (in particular the USA Rice Council) is preparing a white paper examining the implications of the CARICOM CET and its effect on U.S. rice exports.

THE CURACAO CONNECTION

During calendar year 1992 numerous reports from the EC concerned the duty free importation of large quantities of rice from Guyana and Surinam resulting from a loophole in the EC import levy system. This loophole hurts U.S. exports to the EC since both Surinam and Guyana produce long grain rice, the predominant rice exported to the EC by the U.S. In February 1993 action was taken by the EC to close this loophole.

Background

Under the Treaty of Rome (1957), Articles 131-136, non-European overseas countries and territories (OCT) which have special relations with individual EC member nations are given special status in order to promote their economic and social development and to establish close economic relations with the Community as a whole.¹

Under this special status, commodities could enter the EC free of all custom duties provided the imports were of OCT origin. This had negligible impact on EC rice imports since no OCT country produced significant amounts of rice.

The EC was also interested in according preferential trade status to certain African, Caribbean, and Pacific States (ACP) pursuant to its stated goal of contributing towards international development through a new, more balanced international economic order. This led to the signing of a series of Lomé Conventions (held in Lomé, Togo) involving participating ACP countries and the EC where the EC formally declared the terms of preferential trade status to be accorded to the ACP convention signatories. The fourth and most recent Lomé Convention was signed on December 15, 1989.

In accordance with the Convention, the import levy applicable to rice originating from ACP countries is set at

under 50 percent of that of third-country rice imports for all grades of rice.² Calendar year 1992 import quotas for ACP countries were set at 125,000 tons of brown rice (or brown rice equivalent), and 20,000 tons of broken rice.

On July 25, 1991, a formal decision was made by the EC concerning implementation of the special OCT status with respect to imports into the EC for particular commodities from OCT countries, but of third country origin. It was decided that such imports could enter the EC duty free provided that they were of ACP country origin, that they were charged the same import levy applicable in the EC upon their entry into the OCT, and that some prior initial processing occurred in the OCT country.³ With respect to rice, this was interpreted to mean that rough rice could be purchased from an ACP country, shipped into an OCT country at the preferred import levy granted ACP countries by the EC, be processed into a semi-milled state, and then shipped duty free into the EC.

The Netherlands Antilles (of which Curacao is part) qualifies as an OCT country in its relations with the EC due to its special relationship with the Netherlands. Thus, the Netherlands Antilles is able to export semi-milled rice duty free into the EC.

No formal quantity restriction exists for rice imported from OCT countries; however, an official from the Dutch Ministry of Agriculture stated that only Guyana and Surinam qualify as ACP rice producing countries in the proximity of Curacao. Therefore, the actual amount of rice that can potentially enter the EC via this Curacao connection is limited to the rice production of Guyana and Surinam.

Implications for Trade

In 1992/93, Guyana produced an estimated 170,000 tons of rice (milled basis), while Surinam produced 82,000 tons. However, as recently as 1988/89 Surinam produced

189,000 tons, while Guyana's rice production averaged 212,000 tons during 1986/87 and 1987/88. Consequently, the potential existed for greatly expanding the amount of rice traded via the Curacao connection.

Rice originating from Guyana and Surinam has proven to be of unreliable quality. This gives rice from the U.S. a strong quality advantage in European markets. However, the large import price disparity has hurt U.S. competitiveness. U.S. semi-milled long-grain rice entering the EC faces the full variable import levy which results in an import price near \$1,000 per ton, whereas rice entering the EC via the Curacao connection has an import price under \$700 per ton (January prices).

In October 1992 allegations surfaced concerning a large shipment (estimated to be 120,000 tons) of rice from Guyana and Surinam entering the EC duty free via the Curacao connection. The allegations charged that this rice was not processed in Curacao but it was simply re-packed in bags marked "Product of the Netherlands Antilles."⁴

These allegations served to heighten general awareness of the loophole. European traders became concerned about the loophole permitting Guyana and Surinam origin rice to enter duty free into the EC since it pressures internal market prices lower while reducing potential demand for European varieties. By the end of 1992 the French and Italian governments had asked the European Commission to put this matter under official review.

In early February 1993, in what appears to have been an effort at appeasing concerned EC countries, the Government of Netherlands Antilles announced an export tax on rice destined for the EC of \$20 per ton in order to enforce a minimum import price into the EC of \$710 per ton FOB.⁵

This gesture apparently failed to pre-empt EC action as it was followed by an EC Commission decision on Feb-

ruary 25, 1993, to establish as of March 1, 1993, a minimum import price of ECU 546 per ton (\$791 per ton) for semi-milled long grain from the Netherlands Antilles (Curacao) that originates from Surinam and Guyana. This minimum price is to be increased monthly by ECU 3.5 per ton through August 1993. In addition the EC customs authorities retain the right to investigate all documents and trade data for this rice with any deviations from the original registration resulting in potential sanctions.⁶

Should these new trade restrictions placed on rice from Surinam and Guyana entering the EC via the Curacao connection prove sufficient to close this trade loophole into the EC, the end result could be to divert much of this rice trade towards the CARICOM countries where Guyana enjoys duty free status. While providing some relief for U.S. exports to the EC, such a trade realignment could have negative implications for U.S. rice exports to CARICOM countries (See box 1).

Endnotes

1. Article 131, paragraph two of the *Treaties Establishing the European Communities*.
2. Article 10 of Regulation No. 486/85/EEC.
3. Article 101 and Annex II of Regulation No. 91/482/EEC.
4. U.S. State Department cable dated October 2, 1992.
5. As reported in the weekly rice report of the Foreign Agricultural Service Attache's office in Rotterdam dated February 9, 1992.
6. Articles 1-5 of Regulation No. 93/127/EEC.

International Rice Situation

World Production Up Slightly

World rice production in 1992/93 is forecast at a record 351.8 million tons (milled), about 1 percent above 1991/92. Increases in China, Indonesia, Japan, and the United States account for much of the gain. Harvested acreage expanded for nearly all major producer countries with the exception of Bangladesh, China, India, and Pakistan; however, improved yields more than offset acreage reductions in Bangladesh and China.

Global consumption for 1992/93 is forecast up at 354.0 million tons for the fifth consecutive year. The continued rise in consumption has world ending stocks projected down almost 4 percent from 1991/92 at 53.2 million tons.

Abundant supplies in the major consuming countries reduce the world rice trade outlook, despite rising global consumption. World trade is forecast at 14.3 million tons in calendar 1993, down 4 percent from 1992. In light of abundant global exportable supplies combined with a declining import market, the outlook is for continued fierce competition world trade to maintain pressure on world rice prices into mid-1993 when new-crop news becomes available.

U.S. Export Competition Remains Strong

Despite slightly lower projected output in the major exporter countries of Pakistan, Thailand, and Vietnam, global exportable supplies should remain abundant.

Thailand's 1992/93 rice crop is projected at 13.1 million tons (19.8 million tons rough basis), down 2.7 percent from last year despite projected larger acreage. Yields are projected down marginally due to a late planting start combined with some disease and insect problems, thus offsetting the acreage increases.

The 1992/93 main season crop is forecast down slightly at 17.3 million tons (rough) compared with 17.5 million tons last year. The outlook for the dry season crop is for a lower output of 2.5 million tons, down from 1991/92's 2.7 million tons. This compares with the Thai Government's projection for a reduced 2.0-million-ton second crop (See special article on Thailand).

Although up marginally from last year, Thailand's projected domestic consumption of 8.6 million tons is well below the projected output of 13.1 million tons for 1992/93, thus leaving abundant exportable supplies.

Thailand's calendar year 1993 exports are forecast 13 percent lower at 4.2 million tons; however, this is still large enough to maintain Thailand's role as the world's leading exporter. The reduction in exports is due to the weak international market and the financial problems experienced by the Former Soviet Union, a major Thai market in recent years.

In calendar 1992, Thailand's high-quality rice exports (100 percent grades A and B, and 5 and 10 percent broken white rice) accounted for 46 percent of total exports compared with 47 percent in 1991 and 55 percent in 1990. This trend for increasing low-quality rice exports has hurt Thailand's global market share, since it must compete with lower priced Vietnamese and Chinese exports in the low-quality rice market.

Vietnam's 1992/93 production is projected to decline to 13.9 million tons (milled basis), down 4 percent from the 1991/92 record crop, but still the second largest crop. Area is projected up slightly from 1991/92, while yields are projected to drop from their 1991/92 record.

According to the *Vietnam Investment Review*, a publication of the Vietnamese Government's State Committee for Cooperation and Investment, Vietnam's exports for January 1 to March 31, 1993, reached 430,000 tons, doubling exports from the same period in 1992. However, this pace is expected to slow due to projected weak import demand. Calendar 1993 exports are projected to repeat last year's record 1.9 million tons, maintaining its third-place status among world exporters.

Vietnam's high-quality rice exports in 1992 (5 and 10 percent broken white rice) comprised a record 39 percent of its total exports. However, the primary focus for Vietnamese exports remains the intermediate-quality (15 and 20 percent broken) and low-quality (greater than 20 percent broken) markets of Asia and Africa. More important for U.S. exporters is Vietnam's growing competitiveness in the Peruvian and Mexican markets.

In Burma, exports are projected to rise slightly to 300,000 tons from 250,000 in 1992 following an increase in supplies. Production in 1992/93 is projected at 7.8 million tons, up 4.7 percent from 1992. Expanded acreage projections account for the anticipated rise in production. A new government policy directive will see Burma harvesting its initial second (dry-season) crop of rice on 80,000 hectares in 1993. Burma's rain-fed main crop is grown June through October, while the smaller, irrigated, second crop is planted during January and February and harvested during May and June.

Projected Pakistani rice exports for calendar 1993 are forecast at 900,000 tons, down 25 percent from last year reflecting the lowest production since 1985, at 3.0 million tons for marketing year 1992/93, down over 6 percent from 1991/92. Floods and rain damage from the 1992 monsoon lowered harvested acreage and reduced yields in Pakistan. Most of the reduction occurred in the southern non-Basmati rice growing areas of Sindh province. Only minor flood damage occurred in the Basmati growing areas of the Punjab.

Australia grows and exports predominantly Japonica rice. Calendar 1993 exports are projected to remain steady at 500,000 tons despite a smaller outturn. Stocks will be drawn down as a result. Production is projected at 650,000

tons, down 8 percent from 1991/92. Both area and yields in 1992/93 are projected down marginally due to dry conditions. Like other southern hemisphere producers, Australia's rice crop is planted in their spring (September-October) and harvested in their autumn (March-May).

African Imports Forecast Down

Sub-Saharan Africa is projected to import slightly less rice in calendar 1993 despite marginally lower production prospects. Nigeria is projected to show the largest import decline with imports forecast at 70,000 tons less than the year-earlier estimate on the strength of greater production. In other countries, economic difficulties and civil strife are expected to dampen effective import demand.

Middle Eastern Imports Hold Steady

Iran is projected to retain its status as the world's leading rice importer by importing 950,000 tons of rice in calendar 1993, unchanged from the current year expectation. Iraqi imports of rice are forecast to remain unchanged at 500,000 tons for calendar 1993. Imports for the other major middle eastern importing countries of Israel, Jordan, Kuwait, Saudi Arabia, Syria, Turkey, and the United Arab Emirates are forecast at 1.4 million tons for 1993, down from 1992's 1.6 million tons. Lower projected imports for Saudi Arabia and Turkey account for most of the difference.

Egypt's rice exports are projected to rise to 200,000 tons for calendar 1993. Rice production for 1993 is forecast to be a record 2.6 million tons. Over the past several years the Egyptian government has liberalized the rice sector by eliminating mandatory delivery quotas, lifting restrictions on transportation and private milling, and permitting private firms to contract export sales of Egyptian rice. In addition, the government increased procurement prices by 25 percent for the 1992 and 1993 crops from 1991's rate. This reform led to large acreage increases and greater production in 1992. The larger supplies resulted in a near doubling of exports from 85,000 tons in calendar 1990 to 160,000 tons in 1991 and 210,000 tons in 1992. Western Europe and the Gulf Arab States are the main buyers of Egyptian rice.

Latin American Imports Projected Lower

Brazil's rice imports are projected to be 350,000 tons in calendar 1993, down 22 percent from 1992. Uruguay and Argentina supply most of Brazil's import needs as both enjoy low freight costs, receive duty-free privileges under Mercado Comun del Sur (MERCOSUR) trade agreements, and can quickly fill urgent supply needs.

In August, Brazil's official government financing for 1992/93 crop rice was increased by about 4 percent over 1991/92 in real terms. This raised irrigated rice acreage marginally for the 1992/93 crop to be harvested in April-May 1993. However, total acreage is projected up only slightly as non-irrigated rice acreage declined. Output is expected to rise marginally to 7.1 million tons in 1992/93 because of larger acreage and improved yields.

At 175,000 tons, Argentina's calendar 1993 exports are projected 30 percent lower than the 1992 record of 250,000. However, this would still be Argentina's second highest export total since 1976. This reflects the smaller 1992/93 crop of 325,000 tons.

Mexico's imports for 1993 are projected to be down slightly at 350,000 tons, but remain above the annual average of 343,000 tons of the 1980's. Production for 1992/93 is projected at 200,000 tons, up 10,000 tons from the 1991/92 crop. Since joining GATT in 1986, Mexico has been liberalizing many of its grain markets. For rice, this liberalizing has produced higher input costs, lower producer prices relative to other crops, and relatively less expensive imports. The consequent lower production of the past two years has resulted in larger imports.

In calendar 1992, Peru was estimated to be Latin America's third largest importer behind Brazil and Mexico, taking in a record 417,000 tons. Thailand and Vietnam were the principal suppliers of rice to Peru. The record imports for 1992 and slightly larger projected output for 1993 should permit stocks to build, reducing projected import needs for 1993 to only 220,000 tons.

EC and Former Soviet Union Imports Projected Up

European Community (EC) imports for calendar 1993 are projected to increase to 1.3 million tons, up from 1.2 million tons in 1992, while exports decline by 10 percent to 1 million tons. Production in the EC is projected down marginally for 1992/93 at 1.4 million tons due principally to weather-related production shortfalls in Spain.

Traditionally, the EC has been a net importer of rice. However, recently rice imports have been declining. By type, the EC has been a small net exporter of medium-grain rice and a big net importer of long-grain varieties. To reduce overall net imports, the EC established a production subsidy in 1987 designed to encourage rice growers to increase the acreage planted to long grain rice.

The subsidy involves a direct payment to farmers to switch from traditional medium-grain and short-grain varieties, of which there was a surplus, into production of long grain rice, which was in deficit. The subsidy was initially designed to run for the marketing years 1987/88 to 1991/92, gradually falling from a high of ECU 330 per hectare (\$386) in 1987/88 to ECU 200 per hectare (\$252) in 1991/92. Recently an additional year has been added with 1992/93 EC long grain rice production receiving a subsidy of ECU 100 per hectare (\$132).

As a result of this subsidy, the area under Indica varieties has expanded from about 21,000 hectares (6 percent of total area) in 1987/88 to over 65,000 hectares (18 percent of total area) by 1990/91, with production reaching approximately 359,000 tons of rough rice. This program has had a detrimental effect on long-grain rice exports to the EC.

However, this season the effects of the prolonged drought in Spain mollified the potential import substitution effect of the long grain subsidy. Although the production subsidy is set to expire after this year, there are indications that EC millers who have invested heavily in parboiling facilities would like to see the subsidy remain in place to insure domestic supplies.

Eastern European Production Has Been Trending Down

Since 1986, Eastern European rice production has fallen sharply with the introduction of economic reforms. Meanwhile, a larger percentage of Eastern Europe's imports depend on subsidies from the EC and the United States. Imports for calendar 1993 are projected to be 330,000 tons, up 6 percent, while marketing-year 1992/93 production is projected down 18 percent to 58,000 tons.

In the former Soviet Union (FSU), increasing domestic consumption and rising foreign assistance are expected to lead to a continued rise in imports, despite higher domestic production. Imports are projected to reach 825,000 tons in calendar 1993, up 3 percent from 1992. Rice production is projected up 6 percent for 1992/93 to 1.4 million tons, while rice consumption is projected at 2.0 million tons, also up 6 percent.

East Asian Production Estimates Rise

East Asian crops in China and Japan for 1992/93 are expected to exceed last year's output, while Taiwan and South Korean production has been trending downwards under government programs to reduce subsidies and stocks.

USDA's forecast of China's rice production for 1992/93 is 185 million tons rough basis or 129.5 million tons milled basis, up slightly from the flood-damaged crop of 1991/92. This would be China's largest rice crop behind the 1990/91 record crop.

Record or near-record rice production for 4 consecutive years (1989 to 1992) combined with a declining per capita rice consumption have left the Chinese government with large stocks of poor-quality rice. As China's consumers have become more discriminating in their rice consumption demands, the Chinese Government has found it increasingly difficult to draw down its bulging stocks of low-quality rice. At the end of calendar year 1992 China's stocks totaled an estimated 27.2 million tons representing over 21 percent of annual domestic consumption needs.

It is estimated that about 60 percent of China's total rice stocks are stored by farmers. The remainder of the rice is in government storage facilities. Although the government has plans to invest in new grain storage facilities, continued large rice crops in the future will likely overtax existing storage facilities. This could stimulate further exports of low-quality rice.

The large stocks of rice coupled with the large 1992 crop has produced abundant exportable rice supplies for calendar 1993. China's exports for calendar 1993 are projected at

900,000 tons, down only slightly from calendar 1992's estimated 930,000 tons. Since high-quality rice commands a premium in the domestic market only limited exports are permitted to Hong Kong by China Cereal and Oils Import/Export Corporation (CEROIL), the State-run international grain trade monopoly.

Most of China's rice exports consist of low-quality rice sold to poor countries at low prices. Traditional markets for China's low-quality rice include Cuba, Africa, and Eastern Europe. China has shown the ability to maintain its low-quality markets by under-pricing its competitors despite increasing global competition. At the end of 1992, China's low-quality rice was trading at a 10 percent discount to Vietnamese low-quality rice and a 20 percent discount to Thai low-quality rice. Vietnam and Thailand are China's principal competitors in the low-quality international rice market.

China will continue to import high-quality rice for urban consumption. Calendar 1993 imports are projected to match 1992 at 100,000 tons. Most of China's imports come from Thailand, although unofficial across-the-border imports from Vietnam are expected to increase.

In Japan, rice production is projected to expand 10 percent from 1991/92 to 9.6 million tons. Both increased acreage and higher yields are expected to contribute to the improved 1992/93 outlook. In 1991/92, adverse weather led to the lowest production in nearly 40 years. Despite 1991/92 estimated ending stocks at less than 3 percent of consumption, Japan has not deviated from its strict import ban on all but specialty rice. Instead, the Ministry of Agriculture, Forestry, and Fisheries (MAFF) relaxed its rice land diversion program to allow for larger area and increased production in 1992/93.

The MAFF sets annual rice acreage diversion targets as part of a program to reduce government support for domestic rice production. In 1992, the MAFF lowered its target to 700,000 hectares in response to the production shortfall. The diversion target has been further reduced to 676,000 hectares for 1993 through 1995. This lower diversion target should allow acreage and production to expand sufficiently to rebuild stocks towards the MAFF's goal of 1 million tons.

South Korea's production is projected to decline slightly from 1991/92 to 5.3 million tons (milled basis) in 1992/93. Area has been gradually declining since 1987/88 because of government efforts to reduce surpluses. Yields are projected to fall because of dry weather and a shift to lower-yielding, higher-quality varieties. South Korea is expected to continue exporting small quantities of rice, 15,000 tons, in calendar 1993. Both Japan and South Korea maintain bans on rice imports (with some minor exceptions) and this is not expected to change in calendar 1993.

South Asian Production Lower on Weather-related Problems

The 1992/93 South Asian crops of Pakistan, India, and Sri Lanka are forecast lower. Only Bangladesh will marginally increase its output from a year earlier.

India's 1992/93 production is forecast at 73 million tons, down slightly from 1991/92. Expected higher domestic consumption suggests that usage will exceed production for the second consecutive year and draw down stocks to 12 percent of consumption, their lowest total since 1987. India's imports for calendar year 1992 were only 70,000 tons, all from Vietnam. Instead, the Indian Government imported 3 million tons of cheaper wheat in order to make up for its total grain-stock deficiency.

Calendar 1993 exports are forecast at 500,000 tons, including both basmati and ordinary rice, unchanged from 1992. In January 1993 the Indian Government abolished the export quota that restricted non-basmati rice exports; however, it retained a minimum export price requirement of \$275 per ton. This would ordinarily prohibit non-basmati rice exports in the low-price international market. However, during calendar 1992, the Indian Government imported lower-priced Vietnamese rice in order to permit the export of higher-priced non-basmati rice while retaining a balance in total grain stocks. This same tactic could be used again in 1993 as India is expected to import 130,000 tons still outstanding from an earlier purchase from Vietnam.

Bangladesh is projected to repeat last year's record output of 18.3 million tons (milled basis). A slight increase in yields to a record 2.7 tons per hectare is expected to offset lower acreage. Rainfall since March of 1992 has been 45 percent below the 30 year average. In flood-prone Bangladesh, low rainfall tends to have a positive effect on output, particularly if the distribution of rainfall is relatively even throughout the year.

The abundant harvests of the past 2 years have pressured Bangladesh's domestic prices lower. The Government of Bangladesh already has excess rice stocks, much of which is of poor quality, thus preventing further purchases from the local market to support prices. There even have been some reports about possible government rice exports; however, low quality, inadequate infrastructure, and a highly competitive world market are important constraints that should prevent exports from Bangladesh. On the other hand, only 19,000 tons of rice imports, donated for refugees from Myanmar, are projected in 1993 due to the large government stocks. This compares with imports of 39,000 tons in 1992.

Area for 1992/93 is projected down 6 percent in Sri Lanka because of continued dry conditions. Production will fall correspondingly for the second year running at 1.4 million tons. Ending stocks are projected to be drawn down to their lowest since 1987 and imports are projected at 250,000 tons, the same as 1992, but up 27 percent from the preceding 5-year average.

Southeast Asian Production Estimates Rise with Near-Normal Monsoon Rains

Despite a late arrival, the 1992 monsoon brought abundant rains to most of the major rice growing countries of Southeast Asia. Both Thailand and Vietnam are expecting slightly lower 1992/93 production; however, their exportable supplies for calendar year 1993 still remain at above normal levels. The Philippines and Burma are both projected to produce larger crops, while Indonesia is projected to have a record harvest.

Indonesia harvested an estimated record 1992/93 rice crop on the strength of record acreage and yields. Rice production is estimated at 30.7 million tons (milled), up 5.9 percent from the 1991/92 drought-reduced crop. Nearly ideal weather permitted harvesting an unprecedented upland rice acreage.

Heavy rainfall and flooding occurred in parts of Java in late January and early February causing some severe damage to about 50,000 hectares of irrigated rice; however, the rains have replenished reservoir levels throughout Java and crop prospects remain good across most of the Indonesian archipelago for 1993. Burdensome domestic stocks and increasing difficulty for the Indonesian government to support its rice-producer floor price could result in the shifting of some acreage out of rice into other crops, thus lowering the 1993/94 rice outlook.

The Indonesian Government maintains an agricultural policy of self-sufficiency. This policy is supported by a floor price of 340 rupiah per kilogram (\$165 per ton) for rough rice. Indonesia's National Logistics Agency (BULOG) is responsible for supporting the floor price by intervening in the domestic market and purchasing rice. Due to the record harvest of 1992, BULOG procured over 2.5 million tons of rice in 1992.

By the end of February 1993, BULOG rice stocks were about 1.9 million tons, the highest in February since 1986 and more than 2.5 times the level of a year earlier. BULOG uses this rice for three principal purposes: 1) to stabilize rice prices by selling rice when prices rise too high, 2) for distribution to the military and civil servants as salary-in-kind (this amounted to 1.8 million tons in 1992), and 3) for exports. BULOG has the sole authority to engage in rice foreign trade.

As a result of burdensome stocks from the 1992/93 crop, calendar 1993 imports are forecast to decline to 50,000 tons, the lowest since 1987, and compares with an estimated 650,000 tons imported during calendar 1992.

Its surplus stock situation permitted the Indonesian Government to undertake rice export sales of 65,000 tons on a commercial basis in late 1992. At that time BULOG was suggesting that Indonesian rice exports might reach 600,000 tons in 1993. However, the currently competitive world market makes it very unlikely that Indonesia will be able to export more than 400,000 tons in 1993. Current export prices for Indonesian rice are well below cost of pro-

duction, implying a loss on any export sales. However, BU-LOG appears to prefer losses on export sales to losses from storage.

A switch from importing 650,000 tons in 1992 to exporting 400,000 tons in 1993 represents a potential swing of over 1 million tons in world trade in a single year by a single country. Clearly the situation in Indonesia explains much of the current bearish sentiment in the world rice market.

The Philippine's rice production for 1992/93 is projected at 6.0 million tons, up only slightly from the 1991/92 drought-reduced level. Monsoon-induced mud flows and flooding in the provinces surrounding the heavily ash-laden slopes of Mt. Pinatubo significantly damaged important irrigated rice crop areas and actually led to a marginal reduction in acreage from last year. Further mud flows and flooding are expected with the approaching monsoons (June to September) as large remaining deposits of volcanic ash appear vulnerable to erosion. Government efforts at expanding irrigated acreage in other parts of the country in response to the volcano-related losses are not expected to make up for the lost production in the face of strong domestic-consumption growth.

Domestic consumption for 1992/93 is projected to be 6.3 million tons, up 3.3 percent from 1991/92. This represents

the second year in a row, or 5 out of the last 6 years, in which consumption has exceeded production. The Philippine Government's National Food Authority (NFA) has a stated target of maintaining a 90-day supply of rice in stock. This is approximately 1.5 million tons. At the end of 1991/92 stocks were 1.6 million tons. This year, stocks are projected to fall to only 1.4 million tons, despite imports forecast at 100,000 tons for calendar 1993. Meanwhile, the Philippine National Food Authority is expected to delay repayment of 175,000 tons of earlier in-kind rice loans to Indonesia that fall due at the end of calendar 1993. The present low projected rice stock levels should postpone repayment until 1994 at the earliest.

Assuming normal weather for Malaysia in 1992/93, area and yield should increase, leading to a projected 1.2 million tons of production, up 6 percent from 1991/92's drought-reduced production. Imports are projected at 400,000 tons for calendar 1993, down 6 percent from 1992. In the past, Malaysia has relied heavily on rice imports from Thailand to meet import demand; however, in January 1993, the Malaysian Minister of Agriculture announced that imports from Vietnam and India would be increased in order to benefit from their lower prices. The Minister said that by raising Vietnam and India from 50,000 tons to 150,000 and 70,000 tons, respectively, the Malaysian government would save approximately \$5 million per year.

Survey Shows Continued Growth in the Domestic Market

Nathan W. Childs¹

Abstract: Preliminary survey results indicate total U.S. rice consumption was around 54 million hundredweight (cwt) in 1990/91, up 13.7 percent from 2 years earlier. Per capita use exceeded 21 pounds, up over 2 pounds from 1988/89. Processed food use continued to show the strongest growth among use categories, reaching nearly 11.5 million cwt, up from 8.6 million in 1988/89. Certain specialty rices, such as precooked-parboiled and brown rice, also showed stronger-than-average growth.

Keywords: Rice, parboiled, precooked, brown rice, package mixes, pet food.

Preliminary results of USDA's 1990/91 milled rice distribution survey point to continued growth in total and per capita U.S. rice consumption. Survey results indicate Americans consumed about 54 million hundredweight (cwt) of milled rice in 1990/91, up from 47.5 million in 1988/89. Per capita consumption exceeded 21 pounds, an increase of over 2 pounds a person from the last survey for the 1988/89 marketing year. These figures include imports of rice which accounted for about 6.5 percent of total domestic use in 1990/91.

U.S. rice consumption is divided into three categories: direct food use, processed food, and beer. Direct food use is the largest category, currently accounting for about 60 percent of total domestic use. In addition to imports, this category includes regular milled white rice, as well as specialty rices such as parboiled, precooked, brown, and aromatic. Brewers use and processed food use each account for about 20 percent of total use. Processed food use is the fastest growing category.

Several factors point to continued expanding consumption of rice in the U.S. during the rest of the 1990's. These factors include: Fast growing Asian-American and Hispanic-American populations, improved health awareness among consumers, greater convenience in preparing rice, tastiness of rice with many entrees, a large variety of prepared rice dishes and flavored rice mixes available, and adaptation of rice by-products, such as brokens, bran, and rice-bran oil, to new consumer uses.

Growth will likely continue to be strongest among processed products, specifically; package mixes, as demand for prepared foods continues to grow. Growth will also likely be strong for certain specialty rices, such as precooked-parboiled and brown rice as these products continue to account for a larger share of the domestic market.

Big Jump in Use Since the Late 1970's

Total and per capita U.S. rice consumption have been rising since the late 1970's at rates much higher than those achieved during the previous 15 years. Both are expected

to continue increasing throughout the 1990's. During the 1970's, total U.S. rice consumption (including imports) in the 50 States grew 27 percent. But from 1980/81 to 1990/91, total use rose about 75 percent.

And since 1978/79, total rice consumption in the U.S. has doubled, from 26.9 million cwt to about 54 million in 1990/91. Per capita consumption, including brewers use and imports, has doubled from 10.3 pounds in 1975/76, to over 21 in 1990/91.

Rice is consumed at a much higher rate by Asian-Americans and Hispanic-Americans than the U.S. population as a whole. Some consumer surveys indicate Asian-Americans eat about 150 pounds of rice a year, compared with the national average of 17.5 pounds. Asian-Americans currently are the fastest growing ethnic group in the U.S. and this has contributed to increasing per capita rice consumption.

Immigrants from Asia accounted for 43 percent (2.48 million people) of total immigration into the United States from 1981 to 1989. The total number of Asian-Americans in the United States doubled in the 1980's, rising from 1.6 percent of the total population in 1980 to about 3 percent in 1990.

Table A-1--U.S. rice consumption has expanded since the late 1970's

Market year	Direct food use 1/	Processed food use	Beer 2/	Total domestic use
Million cwt				
1966/67	11.1	3.0	3.8	17.8
1969/70	13.1	3.0	5.1	21.2
1971/72	13.6	3.5	5.4	22.5
1973/74	13.3	3.4	5.9	22.6
1975/76	13.0	2.9	6.4	22.2
1978/79	15.3	3.7	7.9	26.9
1980/81	18.9	4.5	8.0	31.4
1982/83	19.7	3.3	9.6	32.6
1984/86	22.3	5.4	9.7	37.4
1986/87	24.7	7.6	10.7	43.0
1988/89	27.7	8.6	11.2	47.5
1990/91 3/	31.5	11.5	11.0	54.0

1/ Includes imports. 2/ Treasury Department data. 3/ Preliminary.

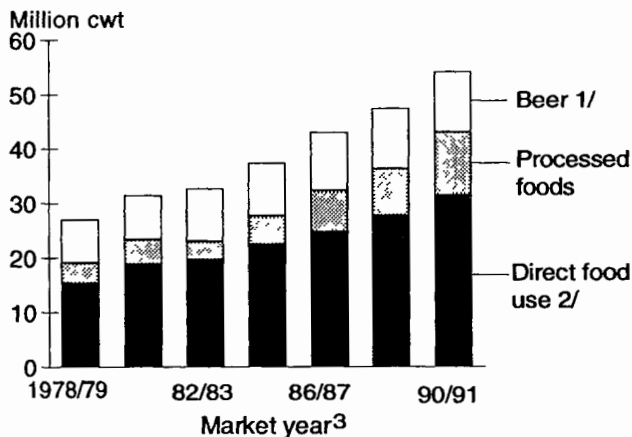
¹ Economist with Economic Research Service, USDA, Washington.

Hispanic-Americans ranked number 2 in overall growth, increasing 53 percent during the 1980's. And States with a large Hispanic-American population have much higher than average per capita rice consumption. Hispanic-Americans accounted for 9 percent of the total U.S. population in 1990. In addition, African-Americans have a per capita rice consumption that is higher than the national average and this ethnic group is growing faster than the population as a whole. African-Americans expanded 13.2 percent between 1980 and 1990, while the U.S. population grew less than 10 percent.

Processed Food Use Is Fastest Growing Category

Processed food is the fastest growing domestic market for U.S. rice. From 1980/81 to 1990/91, processed food use of rice expanded from 4.5 million to about 11.5 million cwt. Processed food's share of total U.S. rice consumption grew from about 14 percent in 1980/81, to over 20 percent in 1990/91.

Figure A-1
Processed Foods Lead Growth in Domestic Use



1/ Data from Treasury Department. 2 Includes imports
3/ Survey taken biannually.

Package mixes and pet foods have been the fastest growing processed markets for rice in the 1990's. These two products together expanded nearly 2 million cwt between 1988/89 and 1990/91, accounting for the bulk of the growth in processed food use during that time. Baby food and frozen dinners also experienced strong growth, but due to their small size, their total volume expansion was smaller.

Packaged mixes, sometimes called flavored rice mixes or prepared mixes, have continued to expand since the early 1980's, growing from under 400,000 cwt in 1984/85 to over 3.1 million cwt by the early 1990's. And shipments of rice for package mixes have more than doubled since 1986/87. Variety, ease in cooking, desirable taste, and ability to quickly add new flavors to product lines have contributed to this growth.

Almost all rice used in package mixes is high quality southern long grain rice. In addition to regular milled white rice, packaged mixes sometimes use brown rice, fried rice, or parboiled rice.

Use of rice in pet foods jumped from 426,000 cwt in 1986/87, to about 1.9 million cwt in 1990/91. Rice is more expensive than other grains and pet foods containing rice are typically premium lines. Pet food uses mostly broken rice, a by-product of milling, and that currently sell at around 50 percent the price of whole grain rice. Pet foods also use small amounts of rice flour.

A traditional processed food use of rice, baby foods, expanded significantly in the early 1990's after two decades of near stagnant sales. Baby foods used around 445,000 cwt of rice, mostly rice flour, in 1990/91, more than double two years earlier and a record high. Baby foods are the largest user of rice flour. Rice-based baby foods are an important substitute for children who are allergic to wheat.

The amount of rice used in rice cakes, the fifth largest processed food item, climbed from 288,000 cwt in 1986/87, to over 411,000 in 1990/91. This product was introduced to U.S. consumers in the mid-1980's. Rice cakes are a nutritious snack, low in calories and cholesterol, and fat free. Numerous efforts to add flavored lines, such as apple cinna-

Table A-2--Package mixes and pet foods are fastest growing product categories

Market year	Cereal	Package mixes 1/	Pet food	Baby food	Rice cakes	Frozen dinners	Soup	Candy	Total 2/
1,000 cwt									
1966/67	2,504	121	--	226	--	--	110	--	2,961
1969/70	2,099	299	--	136	--	--	211	--	2,995
1971/72	2,102	421	--	141	--	--	646	--	3,455
1972/73	2,372	210	--	150	--	--	367	--	3,174
1973/74	2,789	151	--	117	--	--	103	--	3,414
1974/75	1,837	227	--	124	--	--	210	--	2,507
1975/76	1,921	331	--	145	--	--	106	--	2,849
1978/79	2,090	1,096	--	157	--	--	157	--	3,717
1980/81	2,588	1,366	--	133	--	--	147	--	4,491
1982/83	2,503	221	--	152	--	--	176	--	3,342
1984/86	3,577	567	--	316	--	--	241	--	4,971
1986/87	4,800	1,505	426	233	288	61	76	147	7,075
1988/89	3,937	1,705	1,338	172	707	89	119	220	8,621
1990/91 3/	4,500	3,100	1,922	445	411	240	117	105	11,500

-- = Data for this product not collected.

1/ Includes package mixes shipped directly by rice mills. 2/ Includes omitted "other" category. 3/ Preliminary.

mon, cheese, and sesame, and improve eating quality have kept this item an important component of processed food use. Demand for rice cakes that use ingredients other than just rice has grown faster than demand for rice used in rice cakes.

Cereal is the largest processed food use of rice, using around 4.5 million cwt of rice in 1990/91 and accounting for almost 40 percent of processed food use. This is an increase of about 500,000 cwt from 1988/89 and the second largest reported use of rice in cereal. Some rice actually used in cereals in 1988/89 may have been reported in an unspecified processed food category instead of a cereal category, thus underreporting cereal use in 1988/89 and overstating growth in 1990/91.

Medium and short grain rice make-up most of the rice used in cereal. Rice cereals are mainly the ready-to-eat type. They include rice flakes, puffed rice, shredded-rice cereal, and multigrain cereals. In addition, several new multigrain cereals are using rice as one of several grains.

Although almost stagnant from 1966/67 to 1978/79, rice use in cereal expanded rapidly through the middle of the 1980's as many new cereal products with rice were introduced and consumption of traditional rice cereal expanded. Cereal accounted for the bulk of rice growth in processed food during that time.

Other processed food uses of rice, specifically frozen dinners, have also grown since the late 1980's. But frozen dinners use substantially less rice than package mixes and pet foods. Frozen dinners use around 240,000 cwt of rice in 1990-91, up from about 90,000 in 1988/89. Frozen dinners use almost exclusively high-quality southern long grain rice. Use of rice in candy was 105,000 cwt in 1990-91 and has shown no growth in the 1990's.

Soups, which use exclusively southern long grain rice, used about 117,000 cwt of rice in 1990/91, about the same as two years earlier. Many soups use parboiled rice for superior cooking qualities and longevity in cans. All rice used in soups is from the southern milling areas.

Specialty Rices Gaining Popularity

While direct food use has continued to expand since the late 1970's, consumption of domestically-grown specialty rice has increased at a faster pace than regular milled white rice. Domestic specialty rices' share of direct food use (including rice in package mixes shipped directly by mills) rose from 18 percent, or 3.4 million hundred weight (cwt) in 1980/81, to almost 24 percent (6.7 million cwt) in 1990/91. And these figures do not include imported specialty rices which are about 90 percent jasmine rice from Thailand and the remainder mostly basmati rice from India and Pakistan. U.S. imports of rice totaled almost 3.5 million cwt (milled basis) in 1990/91, a record high at that time, and have continued to expand since then.

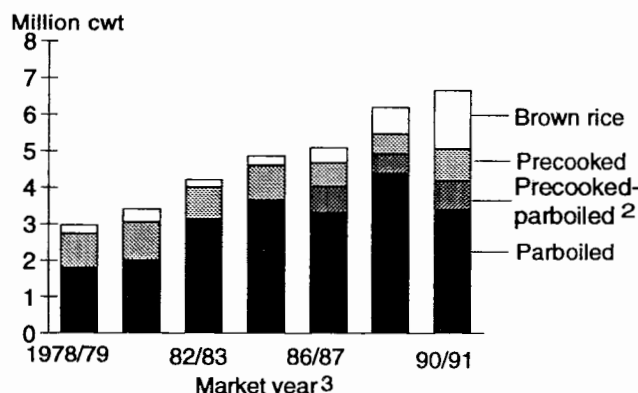
Growth among specialty rices has been strongest for brown rice and precooked-parboiled rice. These two specialty

rices are perceived as nutritious, rich in vitamins and minerals, an aid to good health, and good sources of fiber. Parboiled rice is soaked as rough rice in water, drained, and then heated, typically by steaming. In this process, nutrients that would normally be lost in the milling process are retained in the kernel of the rice.

Total consumption of parboiled rice (including precooked-parboiled rice) increased from 2 million cwt in 1980/81, to 4.18 million in 1990/91, with precooked-parboiled rice showing the only growth in this product category since 1988/89. Precooked-parboiled rice was 804,000 cwt in 1990/91, up from 323,000 in 1988/89. Shipments of regular parboiled rice actually declined between 1988/89 and 1990/91 as precooked-parboiled took a larger share of a smaller total parboiled market. Total shipments of parboiled rice exceeded 4.7 million cwt in 1988/89.

All parboiled rice is southern long grain. Parboiled rice has superior milling qualities, primarily fewer kernels are broken in the process. Parboiled rice is also easier to cook than regular milled white rice, it disintegrates less during cooking, remains better separated, and is less sticky after-

Figure A-2
Brown Rice Leads Growth in Specialty Rices 1/



1/ Does not include imports or aromatic rices.
2/ Includes precooked-parboiled brown rice.
3/ Survey taken biannually.

Table A-3--Precooked-parboiled and brown rice gain popularity 1/

Market year	Parboiled	Pre-cooked	Precooked-Parboiled 2/	Brown rice	Total 3/
1,000 cwt					
1969/70	1,353	808	--	88	2,274
1971/72	1,372	850	--	134	2,359
1973/74	1,399	820	--	167	2,450
1975/76	1,690	823	--	257	2,874
1978/79	1,779	936	--	237	2,958
1980/81	1,989	1,029	--	375	3,408
1982/83	3,120	870	--	216	4,345
1984/86	3,639	953	--	270	4,887
1986/87	3,293	662	72	407	4,689
1988/89	4,383	547	323	692	5,967
1990/91 4/	3,377	870	804	1,600	6,744

1/ Does not include imports but does include specialty rice used in package mixes shipped directly by mills.
2/ Includes precooked-parboiled brown rice. 3/ Includes aromatic rices and other products listed in omitted "other" categories. 4/ Preliminary.

ward. In addition, parboiled rice retains its shape, texture, and taste longer after it is cooked than regular milled white rice. These are important properties for restaurant food under heat lamps or in microwaves, as well as for canned soups and frozen dinners.

Consumption of brown rice expanded from 692,000 cwt in 1988/89, to around 1.6 million in 1990/91, a growth rate faster than achieved by regular milled white rice. California accounted for over two-thirds of the brown rice shipments in 1990/91. Brown rice retains the bran layer that is removed during the complete milling process, thus containing more fiber and nutritional qualities. This health and nutritional factor explains much of the growth in sales since the mid-1980's. Some package mixes and cereals use brown rice.

Consumption of precooked-regular milled white rice has dropped since 1980/81. Consumption of precooked rice expanded during the 1970's, peaking at over 1 million cwt in 1980/81. In 1990/91, total consumption of precooked-regular milled white rice was 870,000 cwt. Precooked rice often has an inferior taste compared with regular milled white rice.

Growth in sales of precooked-parboiled rice explains some of the decline in use of precooked-regular milled white rice. Sales of precooked-parboiled rice have expanded from under 72,000 cwt in 1986/87, to 804,000 cwt in 1990/91. In addition, boil-in-the bag rices may have captured some of the precooked market as well.

Domestically produced aromatic rices remain a very small portion of total specialty rice consumption, accounting for under 100,000 cwt in 1990/91. These rices sell at prices 2 to 3 times the price of regular milled white rice. However, demand for domestic aromatic rice has grown at a much faster pace than total rice use, virtually doubling from 1988/89 to 1990/91.

Imported aromatic and jasmine rices are mostly purchased by recent immigrants from Asia. Sales of these rices have expanded each year since 1980/81 and likely will continue expanding as this ethnic group grows. Most jasmine rice is imported from Thailand. If current efforts by researchers to develop domestic varieties capable of competing with imported jasmine rice are successful, this domestic product category could expand substantially.

Brewers Use Shows No Growth

The fastest and only growing market for domestic rice from the mid-1960's through mid-1970's was brewers use. The majority of the rice used by brewers is broken. Larger stocks of rice and fewer alternative uses for broken rice in the mid-1980's made rice an attractive ingredient in beer. However, this category of rice use has not grown since the late-1980's. Stagnate sales of domestic beer, increasing popularity of light beers using no or little rice, and use of rice in premium beers whose sales have been affected by slow economic growth are reasons for the stagnate use of rice in beer.

During the 1980's, brewers use of rice rose 35 percent, the slowest growth rate of the three major categories of use. And brewers use of rice has actually dropped slightly since 1988/89. Brewers share of total domestic rice consumption dropped from 25 percent in 1980/81, to about 20 percent in 1990/91.

East and West Coasts Are Biggest Markets

Data by State and region exist only for domestic direct food use, about 60 percent of total use. Per capita domestic direct food use is highest in regions with the largest populations, all of which align a coast, have an ethnically diverse population and large urban centers. This correlation of high per capita use and large population contributes to a high geographic concentration of rice use in the United States.

The Pacific region (California, Washington, Oregon, Alaska, and Hawaii) accounted for 25-26 percent of direct food use and the Middle Atlantic (New York, New Jersey, and Pennsylvania) accounted for 24-25 percent in 1990/91. With the South Atlantic (Maryland, Delaware, Virginia, West Virginia, the District of Columbia, North Carolina, South Carolina, Georgia, and Florida) consuming almost 19 percent and the West South Central (Louisiana, Texas, Arkansas, and Oklahoma) nearly 13 percent, it can be stated that about 82 percent of all domestic direct food use of rice occurs in 4 regions which border either the Atlantic, Pacific, or Gulf Coast.

Per capita consumption of rice varies greatly among regions and between States within regions. The Pacific region had the highest per capita consumption for domestic direct use, nearly 18.3 pounds in 1990/91, up from 16.7 in 1988/89. The Pacific region had the highest per capita direct food consumption of rice in the United States from the late 1960's through the mid-1980's. Since the mid-1980's, the Middle Atlantic region has at times tied or barely exceeded the Pacific region for highest per capita direct food use.

California and Washington have accounted for most of the growth in per capita consumption on the continental Pacific Coast. However, Hawaii has the highest per capita rice consumption among the 50 States, estimated from shipment data at around 90 pounds in 1990/91.

The Middle Atlantic region almost tied the Pacific region for highest per capita use, at 18.1 pounds, up from nearly 17 pounds two years earlier. This region's large urban centers, with ethnically diverse populations and internationally oriented restaurants, account for much of this growth in rice consumption. The Middle Atlantic area also has a large number of two-income families who value rice's ease and speed in preparation. New York and New Jersey have per capita direct food use exceeding 22 pounds a person.

Although the West South Central region had the highest per capita consumption for direct food use from 1955/56 to 1969/70, per capita use in this region in 1990/91 was about 13.5 pounds, ranking third among regions. Greater con-

sumption of package mixes and flavored rice dishes, which are counted as processed food uses of rice, and migration of people with low per capita rice consumption into this region explain why sales have not grown as fast as sales along the Atlantic and Pacific Coasts.

The South Atlantic census region ranked fourth, with a per capita direct food use of almost 12 pounds, up 1 pound from 1988/89. South Carolina, the District of Columbia, Florida, and North Carolina all had a per capita direct food use well above the national average of 11.1 pounds.

From 1966/67 to 1978/79, per capita consumption in the South Atlantic remained essentially unchanged and growth was modest even through the early 1980's. Recently, greater migration of Asian-Americans and Hispanic-Americans into this region; plus emphasis on health, convenience,

and tastiness; a large African-American population; and consumer willingness to try new products all explain growth of rice sales nationwide and in the South Atlantic region.

Per capita domestic direct food consumption of rice in the other five census regions was well below the national average of 11.1 pounds. The New England region (Massachusetts, Vermont, Rhode Island, Maine, and New Hampshire) at 6.4 pounds, was the highest among the remaining regions. However, Massachusetts had a substantially higher per capita food use, almost 11 pounds, than the New England region as a whole. In addition, some of the reported shipments to the Middle Atlantic region may have been further shipped to New England for final consumption, thus slightly overstating per capita use in the Middle Atlantic and understating per capita use in New England.

Recent Developments in Thailand: How Have They Affected World Rice Trade? ¹

Randy Schnepf ²

Abstract: The Thai Government has successfully implemented a policy supporting domestic rice prices during November 1992 through January 1993, despite falling world prices and abundant Thai supplies. Between November 19, 1992, and February 10, 1993, the Thai Ministry of Commerce purchased nearly 900,000 tons of rice from the domestic market. This action served to narrow the U.S. price premium over Thai prices, improving the U.S.'s competitiveness in the high-quality long-grain rice market. However, large stocks accumulated by the Thai Government, accompanied by government-to-government sales of 620,000 tons since mid-February, have begun to depress Thai prices. In addition, the likelihood of dry-season rice production in excess of government expectations should further pressure Thai export prices, threatening the favorable price differentials recently enjoyed by U.S. rice exports.

Keywords: Thailand rice policy, world rice trade.

Introduction

Thailand is the world's leading exporter of rice. Over the past 10 years Thailand has accounted for nearly 35 percent of world trade in rice, compared with only about 18 percent for the second-place U.S. Because of its dominance in the world rice market, factors that affect Thailand's rice industry also have an influence on international rice trade.

Thai prices have been on a steady decline for nearly 2 years. The price ³ of Thailand's 100 percent Grade B long grain rice has worked its way downward from a high of \$336 per ton in February 1991 to a low of \$214 on April 20, 1993. This price decline comes in spite of a large, multi-faceted program to support domestic rice prices. Opposition political parties have tried to exploit the falling rice prices in Thailand to discredit the present administration, putting increasing pressure on the Thai Government to do more to support domestic prices.

Since November 1992 the Thai Government has been engaged in purchasing large quantities of rice from the domestic market. The Thai Government has attempted to market its rice holdings through a strategy of government-to-government sales involving easy credit terms and soft prices. On top of this intervention activity there have been several news stories coming out of Thailand recently concerning a poor outlook for the dry-season rice crop. The cumulative effect of these events was to temporarily support rice prices. However, beginning in February 1993, Thai prices began to weaken because of large domestic and government owned supplies, and relatively weak import de-

mand. This situation has had a substantial impact on international price relationships and subsequently on international trade.

These developments have important implications for the U.S. rice industry since Thailand is the U.S.'s principal competitor in the high-quality long-grain rice export market. This article describes the recent events occurring in Thailand and places them in the context of recent Thai agricultural policy and the international rice market.

Table B-1--Thai Government allocations for 1992/93 crop-year rice-support programs

Government agency	Monetary allocation (millions)		Potential rice purchases 1/ 1,000 mt
	Baht	U.S.\$ 2/	
Paddy Mortgage Scheme	7,000	275	2,000
Department of Foreign Trade	5,000	196	892
Marketing year 1992 (carryover)			189
Ministry of Agriculture: Dept. of Agriculture Cooperatives	750	29	214
Dept. of Agriculture Extension	300	12	86
Ministry of Interior	300	12	86
Navy	15	1	4
Air Force	15	1	4
Packing Credit Scheme	5,000	196	1,500
Marketing year 1993	18,380	722	4,975

1/ Potential purchases for the Paddy Mortgage Scheme are based on potential loan defaults; DFT potential purchases are based on confirmed purchases through February 10, 1993; Ministries of Agriculture and Interior, Navy, and Air Force purchases, as well as the Packing Credit Scheme are based on an estimated acquisition price of 3,500 baht per ton. 2/ Exchange rate of 25.5 baht = U.S. \$1.

Sources: FAS Attache reports, news reports, and ERS estimates.

¹ The Foreign Agricultural Service Attache's office in Bangkok provided much of the information on which this article is based, and for which the author is grateful.

² Agricultural economist, Economic Research Service, USDA.

³ The average of nominal FOB price quotes collected from rice traders in Bangkok by the FAS Agricultural Attache Office.

Thai Government Policy Supports the Domestic Rice Industry

The Thai Government traditionally supports its rice industry through a series of government programs including price supports, variable and fixed input subsidies, infrastructure development, and export credit schemes. Also, the Thai Government bans any rice imports.

In addition, recent political pressures have compelled the Thai Government to take additional steps to support internal prices. These have taken the form of massive Ministry of Commerce (MOC) rice purchases from the domestic market accompanied by aggressive efforts at marketing MOC holdings overseas.

The Thai Government has allocated nearly 18.4 billion baht (U.S. \$722 million) for the 1992/93 crop-year price-support programs (table B-1). This allocation would permit potential rice acquisitions of about 5.0 million tons or nearly 30 percent of the main-season crop. Each government program is discussed briefly below.

Price Support Program: The Paddy Mortgage Scheme

The principal government program used to support farm prices is the Paddy Mortgage Scheme administered by the Bank for Agriculture and Agricultural Cooperatives (BAAC). For crop year 1992/93, 7 billion baht has been allocated for the Paddy Mortgage Scheme.

Under this program, rice farmers can mortgage their prospective rice crops for a 3-percent-interest loan (compared with the market rate of about 12 percent in mid-January) valued at 90 percent of government target prices. The farmer then has the option of either selling his crop and repaying the loan, or forfeiting his rice as payment. The credit enables farmers to buy seed and fertilizer, and hold the paddy for a few months until prices rise.

The Paddy Mortgage Scheme applies to the main-season crop for the country's four agricultural regions. Thailand has two rice crops. The main rice crop is grown during the Asian wet season corresponding to the arrival of the annual monsoon rains. Planting usually starts between May and July, while harvesting occurs during November-February. About 9 million hectares are harvested from Thailand's main rice crop. The second rice crop or dry-season crop is much smaller covering between 580,000 to 850,000 hectares. It is planted in January-April and harvested between June and August.

Farmers may obtain their loan by pledging their rice during an open period after which they have 5 months before repaying their loan or forfeiting their rice. The pledging period for the Central, North, and Northeastern regions, where most of the main-season crop is grown, is December to March with a redeeming period lasting to September.

Target prices, set annually by the Thai Government, indicate a price considered desirable for producers to receive under normal market conditions. Different target prices are

set for paddy (rough) rice based on the percentage of broken rice: 5-percent paddy is 4,100 baht per ton, 15-percent paddy is 3,900 baht per ton, 25-percent paddy is 3,800 baht per ton, and glutinous rice is 3,450 baht per ton. Using the current exchange rate of 25.5 baht per U.S. dollar (February 12, 1993) this translates into target prices of \$161, 153, 149, and 135 per ton, respectively.

These 1992/93 crop-year target prices are unchanged from 1991/92. Last year farmers were eligible for 80 percent of the target price, while being charged 12.5 percent on their loans. In addition, the repayment period was for only 3 months following the pledging period. The Thai Government hoped that the more favorable terms for the 1992/93 paddy mortgage scheme would help buoy domestic prices.

By March 15, 1993, the BAAC had put over 3 million tons of paddy under loan, thus exceeding its target of 2.5 million tons by about 25 percent. As of January 13, only 65,000 tons of mortgaged rice had been assumed by the BAAC as repayment for production credit. However, should local market prices fall low enough, the total 3 million tons could be taken over by the BAAC.

In programs similar to the Paddy Mortgage Scheme the Ministry of Agriculture's Department of Agricultural Cooperatives and Department of Agricultural Extension were allocated 750 and 300 million baht, respectively, for purchasing paddy from small rice farmers. Potential rice purchases could reach 300,000 tons.

Also, the Ministry of the Interior and the Thai Navy and Air Force were each allocated 300, 15, and 15 million baht, respectively, to purchase paddy in locations where prices fall below the market level. These paddy purchases are then to be milled and sold to the public. Although no purchases have yet been announced, their potential acquisition could approach 95,000 tons.

Input Subsidies and Infrastructure Development

Irrigation water from surface irrigation facilities is provided free to all farmers. Also, subsidized fertilizer and seed are provided to some farmers, although distribution is limited by government finances. Since 1987, farmers have had access to low-interest intermediate credit from the BAAC for the construction of onfarm paddy storage. On November 6, 1992, financial support was announced for rice mills to upgrade drying machines to improve quality as part of BAAC's overall rice-buying scheme.

In addition to maintaining the nation's irrigation capacity, the Thai Government also undertakes major infrastructure development facilitating the marketing of Thai agricultural products. An example of this is the Thai Cabinet's December 30, 1992, approval of 3 billion baht (U.S.\$118 million) to expand the Mab Ta Phud Port located southeast of Bangkok. By 1996, the port will accommodate more than 3,000 ships annually, according to an engineering study.

Subsidized Credit for Exporters and Millers

The Bank of Thailand (BOT) has allocated 5 billion baht (U.S.\$196 million) to commercial banks for calendar-year 1993 rice purchases by millers and exporters under a program called the "Packing Credit Scheme." The BOT provides the credit to the commercial banks at 4 percent interest. However, in order to be eligible for the credit, a commercial bank must match the BOT baht for baht. This money must then be used to provide 3-month loans to exporters and millers at interest rates not to exceed 10 percent. This is significantly below the market interest rate in Bangkok, which was 12 percent as of mid-January. In calendar-year 1992 the BOT provided 8 billion baht (U.S.\$314 million) for the Packing Credit Scheme.

Ministry of Commerce, Department of Foreign Trade Rice Purchases

The Department of Foreign Trade (DFT) of the Ministry of Commerce (MOC) has been allocated 5 billion baht (U.S.\$200 million) for the 1992/93 crop year in order to intervene in the domestic rice market by purchasing and storing rice. This procedure reduces the amount of rice available to the local market. Traders and exporters are then forced to compete with each other for the available local supplies in order to meet their trade commitments, thus bidding domestic prices up. The DFT purchases can be used to fulfill MOC government-to-government export contracts.

The Thai Government has purchased rice directly from the domestic market in the past; however, the recent surge in

domestic acquisitions is greatly in excess of the traditional pattern. Between November 11, 1992, and February 10, 1993, the Ministry of Commerce's DFT purchased 881,000 tons out of a total of 1,190,000 announced "intentions to purchase" (table B-2). The purchases covered a range of grades in an attempt to support all rice qualities marketed in Thailand, while the reported prices were all above local market prices existing at the time of purchase. The total value of the purchases was an estimated 5.2 billion baht (\$204 million).

The MOC had previously acquired 11,200 tons from the domestic market in 1992. In addition, the MOC still held 189,000 tons from MY 1992 procurements (table A-1). This gave the MOC cumulative total stocks of 1,081,000 tons as of February 10, 1993.

MOC Marketing Activities.

In order to reduce its holdings, the MOC has been aggressively marketing its rice through a strategy of government-to-government sales involving easy credit terms and soft prices. This is not a new strategy for the Thai Government, which frequently engages in trade with foreign commercial traders as well as directly with foreign governments. However, the magnitude of the Thai Government's involvement is far greater than in recent years.

The two principal targets of Thailand's government-to-government marketing efforts have been Russia and Iran, the world's two largest rice importers. In February 1992, the MOC concluded a 2-year credit sale of 500,000 tons of 15 percent broken white rice with Russia at a price of \$280

Table B-2--Thai Ministry of Commerce rice purchases for the 1992/93 crop year

Date announced	Grade of rice	Announced Quantity (1,000 tons)	Confirmed (1,000 tons)	Price Bht/mt	Total value Million baht
11/19/92	White rice 15%	150	256.6	6,200	1,591
12/14/92	White rice 100% B A.1 super	80 60	41.2 27.0	6,770 4,020	279 109
12/29/92	White rice 100% B A.1 super	140 60	NC 156.2	1/ 6,770 1/ 4,020	2/ 740 2/ 189
01/15/93	A.1 super	100	100.0	4,400	440
01/20/93	White rice 100% B	100	100.0	7,448	745
02/02/93	Parboiled 100% A.1 special	200 100	NC NC	NA NA	NC NC
02/05/93	A.1 broken	100	100.0	4,700	470
02/10/93	White rice 100% B	100	100.0	6,374	637
02/10/93	Subtotal	1,190	881.0	5,902	5,200
Previous confirmed/purchases			11.2		
Marketing year 1992	Carryover		189.0		
02/10/93	Total		1,081.2		

NA = Not available.
NC = Not confirmed.

1/ No price was announced, instead prices from the December 14 announced purchase were substituted. 2/ Estimate based on ratio of announced purchase quantities.

Sources: FAS Attache reports, news reports, and ERS estimates.

Table B-3--Thai Ministry of Commerce (MOC): Recent sales or tentative contracts

Date	Seller	Buyer	Type	Quantity		Reported Price	
				1,000 mt		Baht/mt	\$/mt
02/92	MOC 1/	Russia	WR 15%	500		7,140	280
09/10/92	Thai exporters 2/	Hongkong traders	HQ LG	255		NA	NA
11/05/92	Thai exporters 3/	Iran	100% B	250		7,140	280
02/24/93	MOC 4/	Hongkong broker	WR 15%	100		4,718	185
			A.1 Special	100		4,208	165
02/24/93	MOC 4/	Dutch firm	WR 15%	100		4,718	185
02/25/93	MOC 5/	Iran	HQ LG	220		6,955	273
03/17/93	MOC 6/	North Korea	Broken	100		NA	NA
Under negotiation	MOC 7/	Russia	NA	500 to 700		NA	NA

NA = Not available.

1/ Terms: 2-year credit. February-December shipment. In December 1992, the Thai Ministry of Commerce reduced the price for the remaining 50,000 tons of rice from this same sale to \$275.25 per MT from the original price of \$280.25 per ton. The shipment period was extended an extra month to January 1993. 2/ Terms: Shipments occur throughout the year starting in January. The price will be set before the 20th of each month under the approval of the Thai Ministry of Commerce (Dept. of External Trade). 3/ Terms: November to March shipments. 4/ Terms: No terms given. 5/ Terms: 18-month credit at 7 percent interest. March-July shipments. 6/ Terms: 2-year credit. 7/ Terms: 2-year credit terms. Agreement is pending late payment from Russia which was due in December 1992 for 200,000 tons of rice bought in 1990 from Thailand.

Sources: FAS Attache reports, news reports, and ERS estimates.

per ton, although the price was later reduced for part of the sale. Current negotiations for an additional 500,000 to 700,000 tons under a similar 2-year credit package have been held up due to late payment for a 1990 sale of 200,000 tons between the two countries.

On November 5, 1992, Thai exporters completed the sale of 250,000 tons of 100 percent Grade B to Iran for \$280 per ton. This was followed in February 1993 by a sale of 220,000 tons of high-quality long-grain rice to Iran by the MOC for \$273 per ton. The second sale involved 18-month credit terms at a low 7-percent interest. The MOC paid an average price of \$270 per ton for 100 percent Grade B rice purchased from the Thai domestic market since December.

On February 24, an MOC sale of 300,000 tons of rice to a Hong Kong broker and a Dutch trading firm was announced. The sale involved 200,000 tons of 15 percent broken white rice at a price of \$185 per ton FOB, and 100,000 tons of broken rice for \$165 per ton FOB. The market price for 15 percent broken white rice at the time of sale was estimated to be \$222 per ton or \$37 above the announced sale price. The MOC paid an average \$163 per ton for broken rice purchased from the Thai domestic market.

On March 17, the MOC announced a sale of 100,000 tons of broken rice to North Korea on 2-year credit terms. No price was given.

The enormous quantities of rice involved in the government-to-government sales, both attempted and realized, under what appear to be very favorable conditions for buyers are once again weighing heavily on an already depressed international rice market.

Implications for the International Rice Market

Initially, Thailand's strategy of purchasing rice from the domestic market appeared to support internal prices. From November through January, Thai domestic prices and FOB Bangkok offerings edged higher in the face of falling world prices (figure B-1). The price of Thai 100 percent Grade B, FOB Bangkok, rose from a reported \$258 per ton on October 25 to \$279 on January 25. However, by February both the international market and Thailand's domestic rice market were becoming aware of the large stocks of rice that the MOC had accumulated. The notion that eventually this rice would enter the market began to drive Thai and world prices lower.

This strategy has had a substantial impact on the relationship between U.S. and Thai rice prices, and subsequently

Figure B-1

Export Prices and USDA World Price

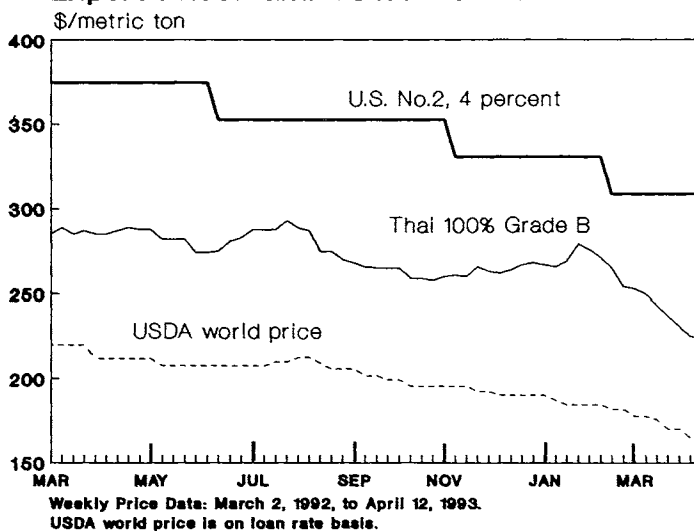
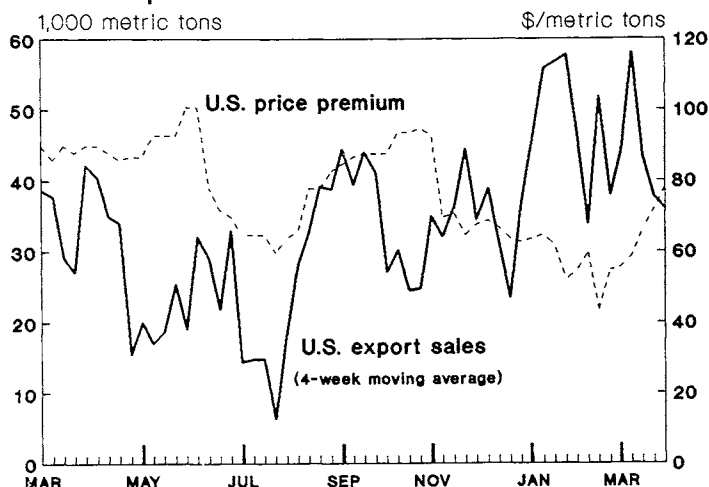


Figure B-2

U.S. Export Sales vs. U.S. Price Premium



First week of March 1992 to fifth week of March 1993.

on international trade. Thailand and the U.S. are the top two competitors in the international market for high-quality long-grain rice. U.S. rice traditionally trades at a premium to Thai rice in international markets. The U.S. has built a reputation as an exporter of high-quality rice with strong guarantees for both rice quality and marketing efficiency (i.e., quality milling and packaging, timeliness of delivery, etc.). This reputation permits U.S. rice to compete with Thai rice of similar quality in international markets despite trading at a price premium.

The price relationship most often used to indicate the competitiveness of U.S. rice with Thai rice is the premium of U.S. No. 2, 4 percent, FOB Gulf port, over Thai 100 percent Grade B, FOB Bangkok. Figure B-1 compares the lowest reported weekly offer price of U.S. No. 2, 4 percent, FOB Gulf port, with an average of weekly nominal price quotes collected from several rice traders in Bangkok by the U.S. Foreign Agricultural Service Attache's office. Figure B-2 compares the U.S. price premium derived from these two price series to a 4-week moving average of U.S. weekly export sales data. A 4-week moving average is more indicative of the general sales pattern than are actual weekly sales data.

From mid-August to late October, U.S. rice export prices were trading at a significant premium to Thai export prices. By the end of October the premium had reached \$95 per ton. This dampened U.S. export sales, particularly during October. Mid-August to mid-September saw a flurry of U.S. export sales activity as several foreign countries hurried to claim U.S. Government export program allocations (EEP, GSM credit guarantees, and PL480) before they expired at the end of the U.S. Government's fiscal year. This spate of export activity occurred independent of the U.S.-Thai price relationship.

In early November, the premium of U.S. over Thai rice prices dropped precipitously from \$93 to \$70 in a single week with a fall in U.S. export prices. During December

and January, rising Thai prices continued to narrow the premium to very competitive levels near \$50. Unfortunately, weak import demand in December caused U.S. export sales to fall off their November pace, but the falling premium again attracted interest in January when sales averaged nearly 56,000 tons per week.

A further decline in U.S. export prices reduced the premium to just \$44 per ton by the second week in February. However, during the last half of February the overwhelming weight of market fundamentals began to pressure world prices lower. The 6.5 percent increase in the January report for the 1992/93 U.S. rice crop and the huge stocks accumulated by the Thai MOC between November 1992 and February 1993 were added to the knowledge that most major consuming and exporting countries have abundant supplies into the 1993/94 crop year.

The most visible manifestation of this bearish news was at the Mid-American Commodities Exchange futures market where rice futures prices went into a near free fall. The near-term March contract fell from \$5.86 on February 12 to \$4.83 on March 4. Buyers, naturally, stay out of a falling market causing a dip in the export pace in February. By March 2 the near-term March contract had fallen below the USDA announced world price (loan repayment basis) for rice. This signaled that prices were finally nearing bottom and U.S. export sales responded accordingly with sales of 103,000 tons for the week ending March 4. During the last 4 weeks of March U.S. export sales averaged 43,475 tons.

Rumors of a Reduced Second Crop

Throughout late 1992 and into early 1993 several reports have emerged from Thailand concerning a poor outlook for the 1993 dry-season rice crop. The principal basis for these reports is that North-Central Thailand has been suffering from chronic water shortage for the past several years. This situation gives rise to annual rumors of a poor dry-season rice outlook, thus lowering expectations for the second crop output. The outlook for a reduced second crop would provide at least temporary support for rice prices in Bangkok, which the Thai Government would like to encourage.

In October, Thailand's Ministry of Agriculture asked farmers in the main rice growing area not to plant a second crop of rice, but instead to switch to dryland crops with smaller water requirements such as soybeans, mung beans, or corn. In November, Thailand's Royal Irrigation Department predicted a serious water shortage for the dry-season rice crop. In December, the Thai Ministry of Agriculture announced a program to limit the dry-season rice acreage to about 332,000 hectares, down from last year's 720,000 hectares. The BAAC announced loans available at 9 percent interest for farmers who divert from rice to a dryland crop.

Thai farmers are able to exercise considerable flexibility in crop production decisions during the dry season when nearly all production is irrigated. This is very different from the wet season when soil, water, and climate conditions prevent many farmers from switching to alternative crops. In addition, few farmers use high-yielding variety

seeds or fertilizer in the wet season because poor water control makes it riskier, whereas the use of high-yielding varieties and modern inputs during the dry-season crop result in substantially higher yields. The 1992/93 wet-season crop produced yields of only 1.92 tons of paddy per hectare compared with the 1991/92 dry season crop's reported yields of 3.75 tons of paddy per hectare.

Irrigation water for the second crop is principally from the reservoirs formed by the Bhumibol and Sirikit dams located 370 to 410 kilometers north of Bangkok. Water from these reservoirs also is used to irrigate other cash crops, as well as to furnish drinking water for 22 central provinces, including Bangkok. In addition, timely releases are used to drive back seawater at the Chao Phya River estuary.

Under current market conditions it is doubtful that farmers will comply with the rice acreage reductions for several reasons. First, water reservoir levels, although below normal, are above last year. Second, rising prices for all grades of rice in Bangkok from December 1992 until mid-February 1993 probably provided sufficient incentive to continue planting rice. Third, farmers have complained about the proposed diversion program saying that they lack planting and marketing experience for the new crops, and that their soil is unsuitable for those crops. And finally, the irrigated second crop is mainly for export; thus, farmers view it as an important source of income. Currently, USDA projects Thailand's 1993 dry season crop to produce 2.5 million tons of paddy, down only slightly from last year's harvest of 2.7 million tons, but well above the Thai Government's outlook for only 2.0 million tons.

Outlook

For the remainder of the 1992/93 marketing year it would appear that lower rice prices should attract more interest by rice importers. However, the price responsiveness of import demand for rice has traditionally been small, as few countries seek to build and maintain large stocks. Instead, most major rice-consuming countries attempt to maintain a thin balance between domestic needs and available supplies. Thus, their ability to jump in and out of the market based solely on price changes is limited. However, rice import demand may benefit from some substitution away from relatively higher priced wheat.

The eventual success of U.S. exports may continue to hinge on the relationship between U.S. and Thai prices. Since mid-February, the premium of U.S. over Thai prices has gradually begun to climb again. Thai prices still show more potential to decline. This is because Thailand also competes in intermediate-quality and lower-quality long-grain rice markets with Vietnam and China, both of whom sell their rice at significant price discounts to Thailand.

According to Vietnam's Ministry of Agriculture, rice exports for the first quarter of 1993 reached 430,000 tons, more than double the same period in 1992. Vietnam's total rice exports for 1992 were 1.9 million tons placing it third among world exporters. A continued rapid export pace by Vietnam could force Thai prices lower in order to compete effectively for intermediate quality rice markets. Furthermore, any support the Thai market may have received from the outlook for a reduced second crop will likely fade as evidence of plantings well above government-requested levels reaches the trade.

These circumstances could lead to a further widening of the U.S. premium over Thai rice prices, giving the competitive edge in the world's high-quality long-grain market back to Thailand. An important key will be the degree to which falling international prices translate into a lower USDA-announced world price, thus retaining a competitive export posture for U.S. rice exports.

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

Item	Unit	1988/89	1989/90	1990/91	1991/92	1992/93 2/
Total rice:						
Area planted	Mil. acre	2.93	2.73	2.90	2.88	3.17
Area harvested	"	2.90	2.69	2.82	2.78	3.13
Yield	Pounds/acre	5,514	5,749	5,529	5,674	5,722
Beginning stocks 3/	Mil. cwt	31.40	26.70	26.40	24.60	27.30
Production	"	159.90	154.50	156.10	157.50	179.10
Imports	"	3.80	4.40	4.80	5.30	5.70
Total supply	"	195.10	185.60	187.20	187.30	212.10
Domestic & residual 4/	"	82.50	82.10	91.70	93.70	97.80
Exports	"	85.90	77.20	70.90	66.40	76.00
Total use	"	168.40	159.30	162.70	160.10	173.80
Ending stocks	"	26.70	26.40	24.60	27.30	38.30
CCC	"	0.00	0.00	0.10	0.40	4.00
Free	"	26.70	26.40	24.50	26.80	34.30
Average market price 5/	\$/cwt	6.83	7.35	6.70	7.58	6.10-6.30
Long:						
Area harvested	Mil. acres	2.23	2.00	2.07	2.02	2.37
Yield	Pounds/acre	5,345	5,464	5,221	5,395	5,397
Beginning stocks	Mil. cwt	19.10	15.40	13.30	11.50	12.90
Production	"	119.40	109.20	107.80	109.10	128.10
Total supply 6/	"	142.10	128.90	125.40	125.40	146.00
Domestic & residual 4/	"	55.60	54.90	57.80	61.50	63.30
Exports	"	71.20	60.80	56.00	51.00	60.50
Total use	"	126.80	115.70	113.80	112.50	123.80
Ending stocks	"	15.40	13.30	11.50	12.90	22.20
Average market price 5/	\$/cwt	6.96	7.59	6.94	7.83	NA
Medium/short:						
Area harvested	Mil. acres	0.67	0.69	0.76	0.75	0.76
Yield	Pounds/acre	6,077	6,579	6,370	6,426	6,738
Beginning stocks	Mil. cwt	10.80	9.00	11.60	11.70	12.90
Production	"	40.50	45.30	48.30	48.30	51.00
Total supply 6/	"	51.40	54.30	60.40	60.50	64.60
Domestic & residual 4/	"	27.80	26.30	33.80	32.20	34.50
Exports	"	14.70	16.40	14.90	15.40	15.50
Total use	"	42.50	42.70	48.80	47.60	50.00
Ending stocks	"	9.00	11.60	11.70	12.90	14.60
Average market price 5/	\$/cwt	6.47	6.71	6.19	7.00	NA

NA = Not available.

Note: Totals might not add because of rounding.

1/ Marketing year beginning August 1. 2/ Projected as of April 1993. 3/ Includes the following quantities of broken kernel rice (type undetermined) not included in estimates of beginning stocks by type (in mil. cwt.): 1988/89, 1.5; 1989/90, 2.4; 1990/91, 1.4; 1991/92, 1.4; 1992/93, 1.4.

4/ Residual: unreported use, processing losses, and estimating errors. Use by type does not add to total rice use because of the difference in brokens between beginning and ending stocks.

5/ Marketing year weighted average price received by farmers. 6/ Includes imports.

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

Year beginning Aug. 1	Supply			Domestic use			Disappearance			Ending stocks--July 31--		
	Begin-ning stocks	Produc-tion	Imports	Food	Seed	Brewers	Exports	Resid-ual	Total disap-pearance	CCC inven-tory	Free	Total
Million cwt												
1962/63	5.4	66.0	0.0	21.5	2.4	4.1	35.5	0.2	63.7	1.8	5.9	7.7
1963/64	7.7	70.3	0.0	22.5	2.4	3.8	41.8	0.0	70.5	1.4	6.1	7.5
1964/65	7.5	73.2	0.5	24.2	2.5	4.3	31.0	0.0	73.5	1.1	6.6	7.7
1965/66	7.7	76.3	0.6	23.5	2.7	4.7	30.9	2.2	76.4	0.6	7.6	8.2
1966/67	8.2	85.0	0.1	23.9	2.7	5.3	32.0	1.2	84.8	0.2	8.3	8.5
1967/68	8.5	89.4	0.0	25.0	3.2	5.4	33.6	0.6	91.1	0.1	6.7	6.8
1968/69	6.8	104.1	0.0	27.0	2.9	5.8	35.7	2.9	94.7	5.5	10.7	16.2
1969/70	16.2	90.8	1.3	23.5	2.5	7.1	33.1	1.9	91.9	6.4	10.0	16.4
1970/71	16.4	83.8	1.5	25.1	2.5	6.8	34.4	2.2	83.1	9.5	9.1	18.6
1971/72	18.6	85.8	1.1	25.5	2.5	7.4	35.4	1.8	94.1	2.7	8.7	11.4
1972/73	11.4	85.4	0.6	25.1	3.0	7.7	35.8	2.5	92.3	0.1	5.0	5.1
1973/74	5.1	92.8	0.2	26.1	3.6	8.1	37.8	2.7	90.2	0.0	7.8	7.8
1974/75	7.8	112.4	0.1	28.6	4.0	8.4	41.0	2.7	113.2	0.0	7.1	7.1
1975/76	7.1	128.4	0.0	27.7	3.5	9.1	40.3	1.8	98.6	18.7	18.2	36.9
1976/77	36.9	115.6	0.1	29.2	3.2	10.3	42.7	3.8	112.1	18.6	21.9	40.5
1977/78	40.5	99.2	0.1	23.5	4.3	9.9	37.7	1.9	112.4	10.8	16.6	27.4
1978/79	27.4	133.2	0.1	33.7	4.3	11.2	49.2	4.2	129.1	8.3	23.2	31.6
1979/80	31.6	131.9	0.1	33.2	4.8	11.2	49.2	6.1	137.9	1.7	24.0	25.7
1980/81	25.7	146.2	0.2	38.4	5.1	11.0	54.5	9.7	155.6	0.0	16.5	16.5
1981/82	16.5	182.7	0.4	42.5	4.4	12.7	59.6	9.0	150.6	17.5	31.5	49.0
1982/83	49.0	153.6	0.7	37.6	2.9	13.5	54.0	8.9	131.8	22.3	49.2	71.5
1983/84	71.5	99.7	0.9	32.7	3.8	12.8	49.3	5.6	125.2	25.0	21.9	46.9
1984/85	46.9	138.8	1.6	35.2	3.4	13.9	52.5	8.0	122.6	44.3	20.4	64.7
1985/86	64.7	134.9	2.2	45.2	3.0	14.1	62.3	3.5	124.5	43.6	33.7	77.3
1986/87	77.3	133.4	2.6	52.8	2.9	15.0	70.7	7.0	161.9	8.7	42.7	51.4
1987/88	51.4	129.6	3.0	54.9	3.6	15.4	73.9	6.5	152.6	0.2	31.2	31.4
1988/89	31.4	159.9	3.8	57.4	3.4	15.6	76.4	6.0	168.4	0.0	26.7	26.7
1989/90	26.7	154.5	4.4	60.1	3.6	15.4	79.1	3.0	159.3	0.0	26.4	26.4
1990/91	26.4	156.1	4.8	63.8	3.6	15.3	82.7	9.0	162.7	0.1	24.5	24.6
1991/92 1/	24.6	157.5	5.3	65.6	3.9	15.2	84.7	9.0	160.1	0.4	26.8	27.3
1992/93 2/	27.3	179.1	5.7	70.0	3.8	15.0	88.8	9.0	173.8	4.0	34.3	38.3

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

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

Year beginning August 1	Supply			Disappearance			Ending stocks
	Beginning stocks	Production	Total 1/	Domestic 2/ and residual	Exports	Total	Total
Million cwt							
1982/83	17.6	93.4	111.0	38.7	47.0	85.7	25.8
1983/84	25.8	64.3	90.7	29.5	44.8	74.3	16.4
1984/85	16.4	96.0	113.3	34.1	42.0	76.1	37.7
1985/86	37.7	100.4	140.1	48.8	42.0	90.8	49.3
1986/87	49.3	96.8	148.6	51.3	69.9	121.2	27.4
1987/88	27.4	89.0	119.4	49.8	50.5	100.3	19.1
1988/89	19.1	119.4	142.1	55.6	71.2	126.8	15.4
1989/90	15.4	109.2	128.9	54.9	60.8	115.7	13.3
1990/91	13.3	107.8	125.4	57.8	56.0	113.8	11.5
1991/92 3/	11.5	109.1	125.4	61.5	51.0	112.5	12.9
1992/93 4/	12.9	128.1	146.0	63.3	60.5	123.8	22.2

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 April 1993.

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

Year beginning August 1	Supply			Disappearance			Ending stocks
	Beginning stocks	Production	Total 1/	Domestic 2/ and residual	Exports	Total	Total
Million cwt							
1982/83	30.2	60.2	90.6	24.4	21.9	46.1	44.7
1983/84	44.7	35.4	80.2	26.0	25.4	51.4	28.8
1984/85	28.8	42.8	71.8	26.0	20.1	46.1	25.7
1985/86	25.7	34.5	60.4	17.5	16.7	34.2	26.2
1986/87	26.2	36.6	62.9	27.5	14.3	41.8	21.1
1987/88	21.1	40.6	61.7	29.2	21.7	50.9	10.8
1988/89	10.8	40.5	51.4	27.8	14.7	42.5	9.0
1989/90	9.0	45.3	54.3	26.3	16.4	42.7	11.6
1990/91	11.6	48.3	60.4	33.8	14.9	48.8	11.7
1991/92 3/	11.7	48.3	60.5	32.2	15.4	47.6	12.9
1992/93 4/	12.9	51.0	64.6	34.5	15.5	50.0	14.6

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 April 1993.

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

Year beginning August 1	Rough milled	Total milled produced 1/	Milling yields	Total heads produced 1/	Milling yields
	-----1,000 cwt-----		Lbs./cwt	1,000 cwt	Lbs./cwt
1978/79	117,961	83,427	70.7	68,749	58.3
1979/80	123,993	89,071	71.8	78,327	63.2
1980/81	141,016	102,278	72.5	89,513	63.5
1981/82	131,841	95,129	72.2	82,022	62.2
1982/83	118,726	84,517	71.2	73,713	62.1
1983/84	111,151	79,012	71.1	68,237	61.4
1984/85	107,195	74,580	69.6	64,063	59.8
1985/86	115,542	81,808	70.8	69,347	60.0
1986/87	140,804	100,257	71.2	83,760	59.5
1987/88	130,818	91,481	69.9	76,863	58.8
1988/89	145,639	104,119	71.5	86,820	59.6
1989/90	136,994	99,453	72.6	85,188	62.2
1990/91	132,523	95,431	72.0	79,993	60.4
1991/92	129,796	91,521	70.5	76,685	59.1

1/ Includes brown rice.

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

Appendix table 6--Rice program provisions, 1986-93

Item	Unit	Crop year							
		1986	1987	1988	1989	1990	1991	1992	1993
Target price	\$/cwt	11.90	11.66	11.15	10.80	10.71	10.71	10.71	10.71
Statutory loan rate	"	7.20	6.84	6.63	6.50	6.50	6.50	6.50	6.50
Acreage reduction/paid diversion	Pct.	35	35	25	25	20	5	0	5
Participation rate	"	94	96	94	94	94	95	96	95

Appendix table 7--Class loan rates and differentials, 1985-93

Item	Crop year								
	1985	1986	1987	1988	1989	1990	1991	1992	1993
	\$/cwt								
Milled rice:									
Long whole kernels	14.53	12.44	11.36	10.89	10.81	10.84	10.74	10.74	10.75
Medium and short whole kernels	10.50	10.44	10.36	9.89	9.81	9.84	9.74	9.74	9.75
Broken kernels	6.02	4.98	5.68	5.45	5.41	5.42	5.37	5.37	5.37
Differential (milled basis) 1/	4.03	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Rough rice 2/:									
Average, all classes	8.00	7.20	6.84	6.63	6.50	6.50	6.50	6.50	6.50
Average, long grain	8.68	7.52	7.03	6.75	6.68	6.68	6.65	6.66	6.66
Average, medium grain	6.49	6.36	6.54	6.33	6.13	6.21	6.11	6.13	6.13
Average, short grain	6.49	6.44	6.39	5.98	5.98	6.12	6.07	6.13	6.13

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

Appendix table 8--State and U.S. rice acreage, yield, and production, by class

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

1/ No medium grain estimated.

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

Appendix table 9--State and U.S. rice area planted, by class

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

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

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

Appendix table 10--Rice stocks: Rough and milled 1/

Date	Rough					Milled			
	On farms or in farm warehouses	At mills and in attached warehouses	In ware- houses (not attached to mills)	In ports or in transit	Total all positions	At mills and in attached warehouses	In ware- houses (not attached to mills)	In ports or in transit	Total all positions
	1,000 cwt								
January 1:									
1980	31,021	15,038	57,278	581	103,918	3,137	810	2,123	6,070
1981	26,179	21,111	48,817	6	96,113	3,055	929	2,556	6,540
1982	48,404	22,952	59,117	911	131,384	2,735	907	1,414	5,056
1983	34,551	24,151	76,070	200	134,972	2,960	858	2,401	6,219
1984	30,681	19,541	64,143	344	114,709	3,867	456	1,395	5,718
1985	32,426	19,535	74,514	797	127,272	3,343	524	2,058	5,925
1986	36,737	23,768	81,967	514	142,986	3,674	461	465	4,600
December 1:									
1986	36,264	18,739	90,153	384	145,540	4,578	461	650	5,689
1987	29,789	13,648	71,902	81	115,420	4,841	617	1,232	6,690
1988	39,581	12,741	79,245	121	131,688	4,813	550	915	6,278
1989	40,040	10,084	66,166	83	116,373	4,254	782	720	5,756
1990	37,662	9,548	65,905	52	113,167	4,046	605	1,180	5,831
1991	37,249	9,630	66,857	54	113,790	3,564	495	351	4,410
1992	39,966	14,434	76,887	196	131,483	3,580	855	1,882	6,317
April 1:									
1980	12,030	15,581	39,224	563	67,398	3,500	402	2,888	6,790
1981	5,977	15,078	28,673	64	49,792	3,499	1,099	3,214	7,812
1982	26,807	21,289	41,773	411	90,280	4,371	725	1,689	6,785
1983	23,778	22,307	62,649	299	109,033	3,295	492	3,165	6,952
1984	15,802	17,432	46,515	17	79,766	3,838	464	2,999	7,301
1985	18,709	16,438	60,188	707	96,042	3,538	481	2,101	6,120
1986	22,232	19,371	73,700	914	116,217	2,818	425	208	3,451
March 1:									
1987	19,561	15,962	70,780	483	106,786	3,881	561	117	4,559
1988	10,104	28,905	39,464	125	75,598	5,680	1,233	1,059	7,972
1989	27,266	12,704	49,439	641	90,050	5,589	189	1,502	7,280
1990	15,965	10,390	51,381	218	77,954	5,259	327	410	5,996
1991	19,345	9,404	43,554	124	72,427	4,002	408	858	5,268
1992	20,658	8,283	46,631	211	75,783	3,888	837	952	5,677
1993 2/	22,397	11,900	57,197	187	91,681	3,474	643	1,075	5,192
August 1:									
1980	563	9,248	9,940	342	20,093	2,128	403	1,504	4,035
1981	208	5,417	4,206	9	9,840	2,744	446	1,665	4,855
1982	4,453	12,544	23,906	484	41,387	5,191	409	1,877	5,477
1983	6,032	11,190	45,899	36	63,157	2,843	223	2,830	5,896
1984	1,250	11,017	27,425	14	39,706	3,976	50	1,095	5,121
1985	697	13,398	44,402	653	59,150	3,023	304	515	3,842
1986	2,031	15,432	52,476	1,008	70,947	3,033	398	1,099	4,530
1987	984	9,986	30,718	115	41,803	5,044	632	1,168	6,844
1988	1,242	7,714	14,789	3	23,748	4,461	189	679	5,329
1989	1,176	7,296	10,084	31	18,587	4,178	752	902	5,832
1990	599	5,370	13,133	51	19,153	3,650	548	998	5,196
1991	852	5,149	12,636	58	18,695	3,569	217	457	4,243
1992	1,109	6,166	13,179	77	20,531	3,833	486	529	4,848

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

Appendix table 11--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
1989:							
January 3 - January 10	9.55	8.80	8.74	4.77	5.90	5.51	5.27
January 17 - January 24	9.79	9.12	9.07	4.89	6.05	5.71	5.46
January 31 - February 21	9.97	9.29	9.23	4.98	6.16	5.82	5.55
February 28 - March 7	10.11	9.46	9.38	5.06	6.25	5.92	5.64
March 14 - April 4	10.33	9.69	9.62	5.17	6.39	6.06	5.78
April 11	10.56	9.85	9.78	5.28	6.53	6.17	5.88
April 18	10.64	9.93	9.86	5.32	6.58	6.22	5.93
April 25 - May 2	11.17	10.36	10.28	5.59	6.91	6.49	6.19
May 9 - May 16	11.41	10.69	10.60	5.71	7.05	6.69	6.37
May 23	11.60	10.83	10.74	5.80	7.17	6.78	6.46
May 30	11.91	11.09	11.00	5.96	7.36	6.94	6.62

See footnote at end of table.

Continued--

Appendix table 11--World market rice prices, loan rate basis 1/--Continued

Date	Milled kernel rates				Rough rates		
	Long	Medium	Short	Broken	Long	Medium	Short
	Cents/lb.				\$/cwt		
1989:							
June 6 - June 20	12.20	11.33	11.24	6.10	7.54	7.10	6.76
June 27	13.20	12.07	11.98	6.60	8.16	7.57	7.22
July 5	13.78	12.79	12.69	6.89	8.51	8.01	7.64
July 11 - August 1	14.41	13.39	13.30	7.21	8.91	8.39	8.00
August 8	14.15	12.91	12.82	7.07	8.74	8.10	7.73
August 15	13.00	11.82	11.74	6.50	8.04	7.42	7.08
August 22 - September 5	12.46	11.23	11.11	6.23	7.70	7.02	6.76
September 12	12.23	11.08	10.96	6.12	7.56	6.92	6.68
September 19 - October 10	11.74	10.57	10.45	5.87	7.26	6.61	6.38
October 17 - October 24	11.43	10.29	10.17	5.72	7.07	6.43	6.21
October 31	10.55	9.67	9.55	5.27	6.52	6.03	5.81
November 7 - November 14	10.16	9.37	9.25	5.08	6.28	5.84	5.63
November 21 - December 26	9.76	9.06	8.94	4.88	6.03	5.64	5.43
1990:							
January 2 - February 13	9.76	9.06	8.94	4.88	6.03	5.64	5.43
February 20	9.54	8.70	8.59	4.77	5.90	5.43	5.23
February 27-March 27	9.41	8.46	8.35	4.70	5.81	5.29	5.10
April 3 - April 17	9.31	8.25	8.14	4.66	5.75	5.17	4.98
April 24	9.11	8.10	7.99	4.56	5.63	5.07	4.89
May 1	8.87	7.95	7.84	4.43	5.48	4.97	4.79
May 8 - May 22	8.63	7.77	7.66	4.32	5.34	4.86	4.68
May 29	8.53	7.66	7.60	4.26	5.36	4.93	4.91
June 5 - June 19	8.45	7.58	7.52	4.22	5.31	4.88	4.86
June 26 - August 7	8.36	7.48	7.41	4.18	5.25	4.82	4.79
August 14 - August 21	8.31	7.38	7.31	4.16	5.22	4.75	4.73
August 28 - September 25	8.18	7.22	7.16	4.09	5.14	4.65	4.63
October 2 - December 18	8.28	7.32	7.27	4.14	5.20	4.72	4.70
1991:							
December 26 - January 22	8.30	7.23	7.24	4.15	5.09	4.47	4.40
January 29 - February 5	9.38	8.30	8.33	4.69	5.75	5.12	5.05
February 12 - March 5	9.39	8.36	8.37	4.70	5.76	5.15	5.07
March 12 - March 19	9.56	8.56	8.57	4.78	5.86	5.27	5.19
March 26 - April 9	9.66	8.69	8.70	4.83	5.92	5.35	5.26
April 16 - May 14	9.45	8.49	8.50	4.73	5.80	5.23	5.15
May 21 - July 30	9.63	8.64	8.65	4.81	5.90	5.32	5.24
August 6 - August 13	9.69	8.78	8.73	4.85	6.00	5.51	5.44
August 20 - November 19	9.74	8.80	8.75	4.87	6.03	5.52	5.45
November 26 - January 14	9.71	8.76	8.72	4.85	6.01	5.50	5.44
1992:							
January 21 - January 28	9.81	8.82	8.76	4.91	6.05	5.57	5.21
February 4 - March 24	9.98	9.03	8.95	4.99	6.15	5.70	5.32
March 31 - May 5	9.62	8.70	8.57	4.81	5.93	5.49	5.10
May 12 - July 14	9.43	8.46	8.32	4.71	5.81	5.34	4.96
July 21 - July 28	9.53	8.64	8.50	4.76	5.87	5.45	5.06
August 4 - August 11	9.65	8.76	8.74	4.82	5.98	5.51	5.50
August 18	9.50	8.64	8.63	4.75	5.89	5.44	5.42
August 25 - September 8	9.34	8.46	8.45	4.67	5.79	5.33	5.31
September 15 - September 22	9.15	8.25	8.24	4.57	5.67	5.20	5.18
September 29 - October 6	9.04	8.16	8.14	4.52	5.60	5.14	5.12
October 13 - November 17	8.88	7.96	7.93	4.44	5.50	5.02	4.99
November 24 - December 1	8.73	7.80	7.78	4.36	5.41	4.92	4.90
December 8 - January 5	8.63	7.81	7.78	4.32	5.35	4.92	4.89
1993:							
January 12	8.49	7.65	7.63	4.24	5.26	4.82	4.80
January 19 - February 9	8.38	7.54	7.51	4.19	5.27	4.76	4.73
February 16 - February 23	8.25	7.41	7.38	4.12	5.19	4.68	4.65
March 2 - March 9	8.07	7.18	7.15	4.04	5.08	4.54	4.51
March 16	7.98	7.07	7.04	3.99	5.02	4.47	4.44
March 23 - March 30	7.72	6.90	6.89	3.86	4.86	4.36	4.34
April 6	7.50	6.76	6.75	3.75	4.72	4.27	4.25

1/ Repayment rates for 1985-crop loans are the world price for the specified class of rice. Repayment rates specified class of rice. Repayment rates for 1986 crop loans and 1987 crop loans are the higher of the world price or 50 percent of the loan rate for the specified class of rice. Repayment rates for 1988-crop loans are the higher of the world price or 60 percent of the loan rate for the specified class of rice. Repayment rates for 1989-1992 crop loans are the higher of the world price or 70 percent of the loan rate for the specified class of rice.

Appendix table 12--Rough rice: Average price received by farmers by month and marketing year 1/

Item	1982/83	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93

	\$/cwt										
Month:											
August	7.31	8.41	8.22	7.86	4.02	3.82	7.49	7.41	6.66	7.16	6.60
September	7.75	8.48	8.17	7.55	3.86	4.34	6.97	7.59	6.21	7.67	6.41
October	7.73	8.80	8.08	7.73	3.83	6.25	6.85	7.41	5.95	7.65	6.40
November	7.78	8.80	8.13	7.84	3.90	7.53	6.81	7.03	6.21	7.84	6.42
December	8.06	8.66	8.08	7.71	3.74	7.64	6.68	7.05	6.12	7.98	6.39
January	8.05	8.57	8.09	7.90	3.55	7.93	6.58	7.44	6.38	7.84	6.36
February	8.26	8.85	7.72	7.86	3.84	9.37	6.67	7.57	6.69	7.97	6.06
March	7.99	8.63	8.17	7.60	3.62	9.22	6.60	7.55	7.07	7.78	4/ 5.99
April	8.23	8.49	8.20	5.32	3.63	8.92	6.74	7.41	7.43	7.46	
May	8.23	8.24	7.91	4.52	3.71	7.97	6.78	7.28	7.45	7.18	
June	7.88	8.20	7.83	4.04	3.62	7.69	7.05	7.18	7.43	6.97	
July	7.95	8.18	7.54	3.86	3.49	7.94	7.45	7.05	7.18	6.99	
Season average price:											
12 months 1/	7.91	8.57	8.04	6.53	3.75	7.27	6.83	7.35	6.70	7.58	6.10-6.30
5 months 2/	7.69	8.63	8.14	7.73	3.87	5.71	6.84	7.24	6.25	7.64	6.44
State: 3/											
Arkansas	8.61	9.18	8.51	6.70	3.68	7.60	6.90	7.46	6.75	7.69	6.30
California	6.65	6.96	6.43	5.33	3.18	6.72	6.15	6.27	5.93	6.65	5.55
Louisiana	8.05	8.90	8.20	7.24	4.03	7.65	6.90	7.81	6.73	7.67	5.95
Mississippi	8.66	9.53	8.88	7.10	3.91	7.90	7.02	7.57	6.99	8.48	6.45
Missouri	8.65	9.49	8.70	7.05	3.57	7.41	7.22	7.54	7.21	7.81	6.30
Texas	8.94	9.97	8.90	7.38	4.22	8.07	7.24	8.02	7.41	8.15	6.45
Type:											
Long grain	8.56	9.36	8.66	6.75	3.82	7.77	6.96	7.59	6.94	7.83	NA
Medium and short grain	6.91	7.13	6.66	5.87	3.55	6.36	6.47	6.71	6.19	7.00	NA

NA = Not available.

1/ Marketing year--August-July. 2/ First 5 months of marketing year--August-December. 3/ Marketing year for; Arkansas and Mississippi--August-July, California--October-September, Louisiana and Texas--July-June. 4/ Preliminary.

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

Appendix table 13--Milled rice: Average price, f.o.b. mills, at selected milling centers

Year and type	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar. 1/	Apr.	May	June	July	Simple average
	\$/cwt, bagged												
	Southwest Louisiana												
Long 2/:													
1983/84	19.40	19.75	19.35	19.50	19.50	19.50	19.25	19.25	19.25	19.25	19.25	19.25	19.40
1984/85	18.25	18.25	17.60	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	17.70	18.00
1985/86	17.50	17.50	17.50	17.50	17.50	17.50	17.50	17.50	15.50	12.70	12.75	12.42	16.10
1986/87	10.60	10.25	10.25	9.90	10.10	10.10	9.95	9.90	10.40	10.40	10.50	10.50	10.25
1987/88	10.70	12.05	17.70	19.75	19.70	20.60	24.45	24.50	24.00	20.75	18.85	17.90	19.25
1988/89	16.80	16.10	14.50	14.50	14.10	14.00	14.20	13.80	13.50	15.40	15.50	15.60	14.85
1989/90	16.40	15.90	15.60	15.00	14.65	15.40	15.65	15.40	15.65	15.80	15.65	15.30	15.55
1990/91	14.65	13.95	13.75	14.00	14.00	14.15	15.45	15.75	16.40	16.50	17.25	16.95	15.25
1991/92	16.40	16.55	16.60	17.15	17.35	17.30	17.30	16.60	16.45	15.70	15.10	15.20	16.48
1992/93	15.00	14.75	14.70	14.45	14.25	13.40	13.00	12.60					
	Houston, Texas												
1983/84	19.50	19.65	20.00	20.00	20.00	20.25	20.25	20.25	20.10	19.50	19.50	19.50	19.90
1984/85	19.40	18.70	18.75	18.75	18.75	18.75	18.75	18.75	18.75	18.75	18.75	17.40	18.70
1985/86	18.70	18.30	18.30	18.30	18.30	17.90	17.50	17.30	17.25	13.75	13.50	13.00	16.85
1986/87	13.00	13.00	13.00	13.00	13.00	11.15	10.50	10.50	10.50	10.50	10.50	10.50	11.60
1987/88	10.50	11.25	19.00	21.00	21.00	21.00	23.65	24.05	24.00	21.70	20.50	20.50	19.85
1988/89	18.20	16.00	15.25	15.00	15.00	15.00	15.00	15.00	15.00	15.15	15.50	16.50	15.55
1989/90	16.50	16.50	16.50	16.00	15.70	15.50	16.25	16.25	16.25	16.25	16.25	16.25	16.20
1990/91	15.80	14.50	14.50	14.50	14.50	14.50	16.00	16.00	16.00	16.35	17.00	17.00	15.55
1991/92	17.00	17.00	16.65	17.00	17.50	17.50	17.50	17.50	17.50	17.25	16.70	16.50	17.15
1992/93	16.50	16.50	16.50	16.10	15.80	15.25	15.15	15.00					
	Arkansas												
1983/84	18.50	18.50	18.85	19.00	19.00	19.00	18.50	18.50	18.50	18.50	18.50	18.50	18.65
1984/85	18.40	18.25	18.25	18.25	18.00	18.00	18.00	17.94	17.75	17.80	17.95	17.75	18.00
1985/86	17.75	17.50	17.40	17.25	17.25	17.25	17.25	17.25	15.50	13.25	13.00	13.00	16.15
1986/87	11.90	11.55	11.75	11.90	11.90	11.90	11.90	11.90	11.65	11.50	11.75	11.75	11.80
1987/88	11.90	13.25	18.50	20.50	20.20	21.20	24.05	24.05	24.00	22.50	21.15	19.00	20.00
1988/89	18.30	16.90	15.10	14.75	15.10	14.80	14.75	14.75	14.75	15.60	15.85	16.95	15.65
1989/90	17.20	16.65	15.95	15.70	15.75	15.90	16.00	16.00	16.00	16.00	16.00	16.00	16.10
1990/91	15.50	15.00	14.50	14.50	14.75	14.75	15.75	15.75	15.95	16.75	17.25	17.25	15.65
1991/92	16.85	16.55	16.50	17.40	17.30	17.25	17.25	17.00	16.90	16.20	15.70	15.50	16.70
1992/93	15.65	15.45	15.40	15.40	15.05	13.80	13.65	13.50					
	Southwest Louisiana												
Medium 2/:													
1983/84	17.50	17.50	17.50	17.50	17.50	17.50	17.50	17.50	17.50	17.50	17.50	17.50	17.50
1984/85	16.00	16.00	15.50	15.50	15.50	15.50	15.50	16.00	16.20	16.30	18.00	16.20	16.00
1985/86	16.00	16.00	16.00	16.00	16.00	16.00	15.70	15.50	14.60	11.90	12.00	11.35	14.75
1986/87	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.50	11.25	11.15	11.20	11.20	10.45
1987/88	11.10	11.95	16.60	17.25	16.75	18.50	19.80	20.15	20.00	18.00	17.40	16.70	17.00
1988/89	16.40	16.20	14.50	14.50	14.00	13.90	13.75	13.50	13.50	14.60	14.65	15.75	14.60
1989/90	15.55	15.30	14.80	14.30	14.04	14.80	15.13	15.13	15.50	15.75	15.65	15.30	15.10
1990/91	14.75	13.90	13.50	13.50	13.50	14.90	14.90	15.05	16.05	16.15	16.50	16.35	14.90
1991/92	15.85	16.00	16.00	16.00	16.00	16.00	15.90	15.50	15.50	15.15	14.50	14.50	15.60
1992/93	14.50	14.00	14.50	14.15	13.40	13.40	13.00	12.80					
	Arkansas												
1983/84	17.50	17.50	17.50	17.50	17.50	17.50	17.50	17.50	17.20	17.00	17.00	17.00	17.35
1984/85	16.90	16.70	16.35	16.20	16.00	15.75	16.25	15.95	16.30	16.25	16.25	15.90	16.25
1985/86	16.00	16.00	16.20	16.50	16.50	16.50	16.50	16.25	14.80	12.35	12.50	12.50	15.20
1986/87	12.25	11.60	12.00	12.00	12.00	12.00	12.65	12.65	12.65	12.35	12.25	12.25	12.20
1987/88	12.25	12.65	16.70	18.00	17.85	18.70	20.50	20.50	20.50	19.00	18.90	18.00	17.80
1988/89	17.30	16.25	14.75	15.00	15.00	14.70	14.75	14.75	15.25	15.40	15.40	16.75	15.45
1989/90	17.20	16.65	15.95	15.45	15.25	15.40	15.50	15.50	15.50	15.50	15.50	15.50	15.75
1990/91	15.25	14.75	14.50	14.65	14.75	14.75	15.75	15.75	15.90	16.60	17.00	17.00	15.55
1991/92	16.60	16.10	16.10	16.70	16.65	16.65	16.65	16.35	16.40	15.65	15.35	15.25	16.20
1992/93	15.50	15.45	15.40	15.40	15.05	13.55	13.65	13.70					
	California												
Medium 3/:													
1983/84	15.65	15.50	15.70	15.50	15.50	15.50	15.50	15.40	15.25	15.25	15.25	15.25	15.45
1984/85	15.25	15.25	15.25	15.25	15.25	15.25	15.25	15.25	15.25	15.25	15.25	15.25	15.25
1985/86	15.25	15.60	16.00	15.95	15.90	16.00	15.75	15.75	15.75	15.59	15.25	15.25	15.65
1986/87	15.00	14.50	13.75	12.65	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	13.00
1987/88	12.50	13.00	16.15	17.00	17.00	16.85	18.50	18.50	18.50	18.00	18.00	18.00	16.85
1988/89	17.85	17.75	16.25	15.75	15.75	15.50	15.50	16.45	17.25	17.25	17.25	17.90	16.70
1989/90	18.45	18.25	17.50	16.55	16.00	15.75	15.75	15.70	15.50	14.90	15.00	15.25	16.20
1990/91	14.80	14.90	14.25	15.25	15.25	15.60	16.25	16.25	16.25	18.10	18.25	17.90	16.10
1991/92	17.65	17.50	17.00	17.80	18.00	18.00	18.05	18.25	18.25	18.25	18.35	18.50	17.95
1992/93	18.25	18.25	18.25	18.25	18.25	18.25	18.25	18.05					
	California												
Short 3/:													
1983/84	15.80	15.50	15.70	15.50	15.50	15.50	15.50	15.38	15.25	15.25	15.25	15.25	15.45
1984/85	15.25	15.25	15.25	15.25	15.25	15.25	15.25	15.25	15.25	15.25	15.25	15.25	15.25
1985/86	15.25	15.60	16.00	15.95	15.90	16.00	15.75	15.75	15.75	15.60	15.25	15.15	15.65
1986/87	15.00	14.50	13.75	12.80	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	13.00
1987/88	12.50	13.00	16.15	17.00	17.00	16.85	18.50	18.50	18.50	18.00	18.00	18.00	16.85
1988/89	17.85	17.75	16.25	15.75	15.75	15.50	15.50	16.40	17.25	17.25	17.25	17.90	16.70
1989/90	18.20	18.25	17.50	16.55	16.00	15.60	15.75	15.70	15.50	14.90	15.00	15.25	16.20
1990/91	14.80	14.90	14.25	15.25	15.25	15.60	16.25	16.25	16.25	18.10	18.25	17.90	16.10
1991/92	17.65	17.40	17.00	17.80	18.00	18.00	18.05	18.25	18.25	18.25	18.25	18.25	17.95
1992/93	18.25	18.25	18.25	18.25	18.25	18.25	18.25	18.05					

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

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

Appendix table 14--Rice byproducts: Monthly average price, Southwest Louisiana

Year and type	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar. 1/	Apr.	May	June	July	Simple average
Milled second head: \$/cwt, bagged 2/													
1982/83	10.00	9.75	9.75	9.75	9.75	9.75	9.75	9.75	9.75	9.75	9.75	9.75	9.75
1983/84	9.75	10.25	10.25	10.25	10.25	10.25	10.25	10.80	10.20	10.00	10.00	10.00	10.20
1984/85	8.50	8.75	8.80	8.00	8.00	8.00	9.00	9.20	9.25	10.00	10.25	10.25	9.00
1985/86	10.25	10.25	10.17	10.00	10.00	10.00	10.25	10.25	8.80	7.75	7.75	7.75	9.45
1986/87	7.75	7.75	7.75	7.65	7.75	7.75	7.75	7.70	7.60	7.60	5.85	5.65	7.40
1987/88	5.75	6.00	6.90	7.50	7.50	7.75	7.70	7.75	7.75	7.75	7.85	8.25	7.40
1988/89	8.15	8.10	8.50	8.00	8.00	8.00	10.05	9.70	9.70	10.70	10.60	10.45	9.15
1989/90	9.95	9.65	9.00	8.10	8.00	8.00	8.50	8.50	8.50	8.50	8.50	8.40	8.65
1990/91	7.75	7.50	7.50	7.50	7.50	7.50	7.90	7.50	8.50	8.60	9.00	9.15	8.00
1991/92	8.65	8.50	9.20	9.50	9.50	9.50	9.15	8.75	8.80	8.75	9.00	9.00	9.05
1992/93	9.00	9.00	8.90	8.90	8.75	8.40	7.80	7.75					
Rice bran, f.o.b. mills: \$/ton 3/													
1982/83	52.80	53.00	54.00	77.65	85.00	77.50	52.15	47.25	59.65	70.30	61.25	NQ	62.80
1983/84	62.15	70.00	94.00	108.35	120.85	98.50	57.50	50.00	67.50	60.00	NQ	59.00	77.10
1984/85	69.15	49.50	45.15	53.75	69.15	85.00	77.50	53.25	40.50	45.67	45.00	47.50	56.75
1985/86	43.35	40.00	20.00	42.50	62.50	86.00	65.00	51.65	NQ	25.75	20.00	18.35	43.20
1986/87	16.25	23.80	26.50	34.00	53.15	50.00	36.70	28.40	23.50	20.65	18.80	17.00	29.05
1987/88	19.50	27.40	46.70	54.50	54.20	68.35	49.65	47.25	60.00	45.00	44.20	85.00	50.15
1988/89	64.00	58.10	64.00	64.00	70.65	71.40	52.25	64.10	65.00	45.85	46.65	48.75	59.55
1989/90	55.75	55.40	60.25	69.00	76.20	84.40	51.00	49.65	51.50	71.50	75.35	75.90	64.65
1990/91	72.25	52.40	50.75	52.00	56.00	66.40	51.75	48.65	57.65	47.35	50.25	57.50	55.25
1991/92	42.85	36.80	43.00	54.50	72.00	75.00	56.50	44.65	41.40	40.90	42.25	45.40	49.60
1992/93	43.75	38.40	41.15	58.60	72.65	79.25	59.50	51.50					
Rice millfeed, f.o.b. mills: \$/ton 3/													
1982/83	16.00	16.75	15.25	26.15	35.00	45.00	13.50	15.25	19.35	23.60	22.10	23.00	22.60
1983/84	24.00	25.40	33.30	42.10	61.65	53.00	22.50	24.75	31.20	21.25	25.00	27.75	32.65
1984/85	23.50	18.75	18.65	19.40	24.50	31.75	34.70	22.00	17.00	16.90	15.00	14.50	21.40
1985/86	13.00	13.00	8.00	15.40	19.50	34.10	NQ	19.50	20.85	8.50	5.00	4.50	14.65
1986/87	5.15	10.00	10.00	11.25	15.00	13.75	8.15	6.15	4.50	3.50	3.65	4.25	7.95
1987/88	8.50	9.50	21.35	22.70	21.50	28.35	17.40	18.85	22.50	16.00	19.50	40.00	20.50
1988/89	21.50	17.90	18.00	21.50	24.00	23.60	20.00	19.00	20.00	15.00	15.65	16.00	19.35
1989/90	17.15	16.75	14.00	22.65	23.70	27.70	14.20	14.65	16.50	22.40	25.00	25.00	19.95
1990/91	28.75	19.00	19.25	19.00	21.50	25.25	17.15	18.50	17.50	13.85	14.25	16.30	19.20
1991/92	12.15	11.20	13.40	19.90	39.50	37.15	17.50	14.65	14.75	14.15	15.00	16.15	18.80
1992/93	14.75	13.50	14.50	17.50	27.40	37.15	25.40	18.70					

NQ = Not quoted.

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

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

Appendix table 15--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
Arkansas 1/: \$/cwt													
1982/83	6.55	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50
1983/84	6.50	6.75	7.00	7.00	6.90	6.76	6.63	6.50	6.62	6.70	6.90	7.10	6.80
1984/85	7.25	7.30	7.30	7.30	7.30	7.30	7.30	7.30	7.15	7.00	6.80	6.75	7.15
1985/86	6.75	6.70	6.50	6.50	6.50	6.30	6.00	6.00	5.75	5.50	5.50	5.50	6.15
1986/87	5.20	5.00	4.75	4.75	4.65	4.45	4.20	4.20	4.20	4.20	4.10	3.75	4.45
1987/88	4.00	4.15	6.00	6.20	6.10	6.10	6.95	7.25	7.25	6.90	7.40	8.35	6.40
1988/89	8.50	8.70	8.75	8.75	8.75	8.60	10.45	10.20	10.20	11.00	11.00	10.65	9.65
1989/90	9.65	9.00	8.50	8.00	7.75	7.75	7.75	7.45	6.85	6.60	6.60	7.05	7.75
1990/91	7.00	6.10	6.20	6.50	6.25	6.05	6.65	7.10	8.00	8.00	8.00	8.00	7.00
1991/92	8.00	8.40	8.70	9.00	9.00	8.90	8.50	8.65	8.25	8.25	8.25	8.25	8.50
1992/93	8.25	8.25	8.25	7.90	7.30	7.20	7.00	6.90					
New York 2/:													
1982/83	9.91	9.75	9.60	9.74	9.78	10.07	10.52	10.82	11.35	11.32	11.58	12.06	10.54
1983/84	12.85	13.06	12.77	12.64	11.96	11.81	11.95	12.58	12.99	12.95	13.19	13.01	12.65
1984/85	12.90	12.64	11.49	11.33	11.03	11.20	11.50	11.86	11.42	11.45	11.54	11.46	11.65
1985/86	11.40	11.59	10.62	10.83	11.11	10.91	10.71	10.81	10.75	11.12	11.26	10.98	11.01
1986/87	10.30	9.84	9.85	9.84	9.46	9.40	9.20	9.42	9.60	10.02	9.97	9.48	9.70
1987/88	9.22	9.34	9.51	9.56	9.52	9.66	9.76	9.78	9.81	9.82	11.42	12.23	9.97
1988/89	11.67	11.50	11.56	11.37	11.54	11.47	11.32	11.56	11.37	11.99	11.47	11.54	11.53
1989/90	11.23	11.35	11.50	11.55	11.47	11.49	11.51	11.66	12.01	12.19	12.17	12.09	11.69
1990/91	11.83	11.61	11.62	11.63	11.60	11.61	11.71	11.70	11.78	11.52	11.39	11.29	11.61
1991/92	11.71	11.50	11.55	11.41	11.45	11.44	11.75	11.77	11.51	11.56	11.84	11.48	11.58
1992/93	11.25	11.30	11.21	11.29	11.25	11.20	11.18	11.44					

Sources: 1/ Rice Market News, Agricultural Marketing Service, USDA.

2/ Milling and Baking News.

Appendix table 16--Thailand milled rice prices, f.o.b. Bangkok 1/

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

NA = Not available.

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

Appendix table 17--Milled rice: Average cost and freight ARAG quotations 1/

Type	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93 4/
\$/metric ton							
U.S. no. 2 milled, 4%, container, FAS 2/:							
August	299	316	325	354	306	364	332
September	285	349	303	357	287	373	336
October	305	NQ	303	324	284	379	333
November	303	415	310	314	314	381	314
December	249	413	300	312	325	380	305
January	224	442	292	338	333	379	289
February	224	496	290	356	349	378	276
March	224	493	290	348	364	363	263
April	224	455	292	342	372	343	
May	240	420	317	338	380	333	
June	267	329	356	336	389	313	
July	277	355	368	333	378	322	
Average	260	408	312	338	340	359	
Thai SWR 100% Grade A, bulk 3/:							
August	303	300	380	448	401	415	408
September	297	312	380	433	395	413	400
October	292	349	378	407	402	401	400
November	275	341	375	384	395	388	400
December	260	338	375	376	400	382	400
January	260	365	360	379	418	379	398
February	262	395	360	395	439	385	399
March	276	396	360	394	428	388	385
April	282	383	365	371	398	397	
May	275	377	400	379	398	399	
June	273	366	412	396	391	402	
July	268	383	437	399	395	408	
Average	279	359	382	397	405	396	
Thai SWR 100% Grade B, bulk 3/:							
August	243	250	322	386	311	357	328
September	230	280	320	369	310	341	319
October	225	316	320	359	330	323	307
November	219	303	320	331	321	320	302
December	215	304	320	322	304	319	304
January	218	328	315	328	359	322	308
February	236	357	320	350	386	325	313
March	244	359	325	343	365	326	289
April	246	340	328	326	335	325	
May	241	340	360	309	344	327	
June	238	311	389	308	347	320	
July	235	324	402	307	350	328	
Average	232	318	337	336	339	328	

NQ = Not quoted.

1/ ARAG = composite of ports near Rotterdam. 2/ FAS, container, gulf port quote. All other prices are C & F ARAG.
 3/ Thailand prices changed to bulk quote on May 15, 1985. Prior to this date Thai prices were quoted by the bag.
 4/ March 1993 data are preliminary.

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

Appendix table 18--World rice supply and utilization

Year	Area harvested	Yield 1/	--Production 2/--		Exports 3/	Total use 4/	Ending stocks 5/	Stocks-to-use ratio 6/
	Million hectares	Mt/ha	Rough	Milled				
-----Million metric tons-----								
Percent								
1961/62	115.7	1.86	215.7	147.3	6.3	149.2	8.5	5.7
1962/63	119.6	1.91	228.2	155.2	7.3	151.3	12.4	8.2
1963/64	121.5	2.04	248.4	169.1	7.7	165.2	16.2	9.8
1964/65	125.4	2.12	265.6	180.8	8.2	179.8	17.3	9.6
1965/66	124.0	2.04	253.5	172.9	7.9	172.2	18.0	10.4
1966/67	125.7	2.09	262.1	179.0	7.8	178.4	18.6	10.4
1967/68	127.0	2.18	276.9	188.9	7.2	186.5	20.9	11.2
1968/69	128.7	2.22	285.8	194.9	7.5	191.0	24.8	13.0
1969/70	131.5	2.24	295.2	201.1	8.2	199.7	26.1	13.1
1970/71	132.7	2.35	312.5	213.0	8.6	210.4	28.8	13.7
1971/72	134.9	2.35	316.6	215.8	8.7	216.2	28.4	13.1
1972/73	132.7	2.31	306.2	208.9	8.4	213.9	23.4	10.9
1973/74	136.4	2.45	333.8	227.6	7.7	222.4	28.5	12.8
1974/75	137.9	2.40	331.1	225.7	7.3	226.0	28.2	12.5
1975/76	143.0	2.50	357.4	243.1	8.4	232.5	38.9	16.7
1976/77	141.5	2.45	346.8	235.8	10.6	236.9	37.8	16.0
1977/78	143.6	2.57	368.7	250.6	9.6	244.5	43.9	18.0
1978/79	143.8	2.68	385.4	262.4	11.9	252.2	54.1	21.5
1979/80	141.4	2.66	376.6	256.8	12.6	258.1	52.8	20.5
1980/81	144.2	2.73	393.8	267.8	13.1	272.6	48.0	17.6
1981/82	144.9	2.81	407.6	277.4	11.8	281.4	44.0	15.6
1982/83	140.4	2.96	416.1	283.6	11.9	283.7	43.8	15.4
1983/84	144.1	3.11	448.5	305.3	12.3	301.9	47.2	15.6
1984/85	144.0	3.22	463.8	316.0	11.3	307.3	56.0	18.2
1985/86	144.8	3.22	466.6	317.5	12.6	318.1	55.4	17.4
1986/87	145.1	3.21	465.5	316.7	12.9	320.7	51.4	16.0
1987/88	141.7	3.27	463.8	314.5	11.9	320.0	45.8	14.3
1988/89	145.4	3.35	487.4	330.0	15.0	327.6	48.3	14.7
1989/90	146.7	3.45	505.8	342.6	12.2	335.9	55.0	16.4
1990/91	147.1	3.52	517.8	350.6	12.8	345.5	60.0	17.4
1991/92 7/	145.8	3.53	514.7	348.1	14.9	352.7	55.4	15.7
1992/93 8/	146.4	3.55	520.2	351.8	14.3	354.0	53.2	15.0

1/ Yields are based on rough production. 2/ Production is expressed on both rough and milled basis; stocks, exports, and utilization are expressed on a milled basis. 3/ Exports quoted on calendar year basis. 4/ For countries for which stock data are not available, utilization estimates represent apparent utilization, i.e., they include annual stock level adjustments. 5/ Stocks data are based on an aggregate of different market years and should not be construed as representing world stock levels at a fixed point in time. Stocks data are not available for all countries and exclude the former USSR, North Korea, and parts of Eastern Europe. 6/ Stocks-to-use represents the ratio of marketing year ending stocks to total utilization. 7/ Preliminary. 8/ Forecast as of April 1993.

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

Appendix table 19--World rice production and stocks: Selected countries or regions 1/

Country or region	Crop year 2/							
	1985/86	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93 4/
Million metric tons								
Production:								
Bangladesh	22.6	23.1	23.1	23.3	26.8	26.8	27.4	27.4
Burma	11.5	11.8	11.4	12.5	13.5	13.7	12.8	13.4
China	168.6	172.2	173.9	169.1	180.1	189.3	183.8	185.0
India	95.7	90.6	85.3	105.7	110.4	111.4	110.5	109.5
Indonesia	39.0	39.0	41.5	42.3	44.7	45.2	44.7	47.3
Japan	14.6	14.6	13.3	12.4	12.9	13.1	12.0	13.2
South Korea	7.9	7.9	7.6	8.4	8.1	7.7	7.4	7.3
Pakistan	4.4	5.2	4.9	4.8	4.8	4.9	4.9	4.6
Thailand	20.3	18.9	18.4	21.3	20.2	17.2	20.4	19.8
Subtotal	384.6	383.3	379.4	399.8	421.5	429.3	423.9	427.4
Australia	0.7	0.6	0.8	0.8	0.8	0.8	1.1	1.1
Brazil	9.8	10.6	11.8	11.0	7.2	10.0	10.1	10.5
EC-12	2.0	1.9	1.9	2.0	2.1	2.4	2.3	2.2
All others	63.8	62.9	63.8	66.4	67.2	68.2	70.2	70.8
Total non-U.S.	460.9	459.3	457.7	480.0	498.8	510.7	507.6	512.1
United States	6.1	6.0	5.9	7.3	7.0	7.1	7.1	8.1
World total	467.0	465.3	463.6	487.4	505.8	517.8	514.7	520.2
Ending stocks 3/:								
Total foreign	52.9	49.7	44.9	47.4	54.2	59.2	54.6	52.0
United States	2.5	1.7	1.0	0.9	0.9	0.8	0.9	1.2
World total	55.4	51.4	45.9	48.3	55.1	60.0	55.4	53.2

1/ Production is rough basis, but ending stocks are milled basis. 2/ World rice harvest stretches over 6-8 months and varies widely across countries and hemispheres. 3/ Stocks are based on an aggregate of different local marketing years, and should not be construed as representing world stock levels at a fixed point in time. In addition, stocks data are not available for all countries. 4/ Projected as of April 1993.

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

Appendix table 20--World rice trade (milled basis): Exports and imports of selected countries or regions

Country or region	Calendar year						
	1987	1988	1989	1990	1991	1992 1/	1993 2/
Exports:							
United States	2,444	2,241	2,967	2,420	2,197	2,105	2,400
Argentina	150	160	130	70	125	250	175
Australia	338	417	450	470	400	500	500
Burma	493	368	456	186	300	250	300
China	1,020	698	320	300	689	930	900
Taiwan	240	104	68	50	200	200	200
EC-12	981	920	973	985	1,093	1,116	1,000
Egypt	105	108	32	85	160	210	200
Guyana	69	56	35	30	53	55	75
India	350	200	450	500	600	500	450
Indonesia	100	0	104	50	0	65	400
North Korea	154	199	175	75	0	0	0
Pakistan	1,226	950	779	904	1,297	1,458	900
Thailand	4,355	4,791	6,036	3,937	3,993	4,774	4,200
Uruguay	190	244	251	250	262	300	350
Vietnam	153	97	1,400	1,500	1,000	1,900	1,900
Other	560	355	419	362	395	326	319
World total	12,928	11,908	15,045	12,174	12,764	14,939	14,269
Imports:							
Bangladesh	746	187	400	100	50	40	20
Brazil	200	64	180	405	965	450	350
Canada	85	135	148	130	160	170	180
China	554	310	1,200	142	142	103	100
Cuba	150	200	200	200	150	200	200
Eastern Europe	320	290	273	261	286	310	333
EC-12	1,198	1,215	1,271	1,237	1,255	1,212	1,315
India	5	650	500	0	0	70	130
Indonesia	155	33	412	60	180	650	50
Iran	1,000	400	1,000	850	565	950	950
Iraq	524	603	542	360	250	500	500
Ivory Coast	445	212	305	303	398	290	315
North Korea	0	0	0	0	200	10	150
Kuwait	90	90	90	90	90	90	100
Madagascar	125	70	130	155	60	100	100
Malaysia	280	350	360	360	400	425	400
Mexico	0	0	189	130	175	385	350
Nigeria	400	240	300	220	210	270	200
Peru	211	17	162	246	300	417	220
Philippines	0	181	195	630	0	0	100
Saudi Arabia	500	431	525	525	525	625	525
Senegal	355	360	400	385	410	360	385
South Africa	268	237	292	295	360	375	385
Sri Lanka	102	180	292	132	133	250	250
Syria	120	120	140	140	135	140	140
Turkey	110	170	200	198	133	300	250
U.A. Emirates	222	220	300	335	200	260	250
Former USSR	598	498	600	400	400	800	825
Vietnam	344	175	50	0	0	0	0
Other	3,436	3,855	3,892	3,758	4,235	4,634	4,413
Unaccounted 3/	385	415	497	127	397	553	783
World total	12,928	11,908	15,045	12,174	12,764	14,939	14,269

1/ Forecast. 2/ Projected as of April 1993. 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 21--U.S. rice exports by type 1/

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

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

Source: U.S. Bureau of the Census.

Appendix table 22--U.S. rice exports by export program

Fiscal year	PL 480	Section 416	CCC credit programs 1/	CCC African relief exports	EEP 2/	Export programs 3/	Exports outside specified export programs	Total U.S. rice exports	Export programs as a share of total exports
									Percent
1,000 metric tons									
1975	747	0	48	0	0	795	1,419	2,217	36
1976	509	0	101	0	0	610	1,340	1,953	31
1977	691	0	15	0	0	705	1,614	2,317	30
1978	530	0	50	0	0	580	1,696	2,276	25
1979	486	0	42	0	0	528	1,868	2,396	22
1980	540	0	168	0	0	708	2,247	2,955	24
1981	360	0	452	0	0	812	2,360	3,172	26
1982	374	0	14	0	0	388	2,523	2,911	13
1983	475	0	328	0	0	803	1,473	2,276	35
1984	464	0	571	49	0	1,084	1,209	2,293	47
1985	577	0	359	4/ 180	0	4/ 1,116	4/ 856	1,972	4/ 56
1986	313	0	477	0	23	813	1,569	2,382	34
1987	426	60	636	0	28	1,150	1,304	2,454	47
1988	321	29	443	0	120	913	1,220	2,173	42
1989	408	0	826	0	20	1,254	1,787	3,041	41
1990	350	0	663	0	0	1,013	1,484	2,497	41
1991	372	0	183	0	76	631	1,748	2,395	26
1992 5/	381	0	220	0	358	919	1,360	2,279	40

1/ Quantities and values shown are based on reports supplied by the export trade and may not completely reflect exports made under these programs. 2/ Sales not shipments. 3/ Adjusted for estimated overlap between CCC export credit and EEP shipments. 4/ Estimated. 5/ Preliminary.

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

Appendix table 23--Top-10 U.S. rice export markets

Rank	FY 1992		FY 1991		FY 1990		FY 1989		FY 1988		FY 1987	
	Country	% of total exports 1/	Country	% of total exports	Country	% of total exports	Country	% of total exports	Country	% of total exports	Country	% of total exports
1	Saudi Arabia	11.7	Saudi Arabia	11.1	Iraq	12.1	Iraq	18.8	Iraq	21.4	Iraq	22.1
2	Canada	7.8	Brazil	8.2	Saudi Arabia	9.5	Saudi Arabia	8.7	Saudi Arabia	14.2	Saudi Arabia	13.1
3	Turkey	7.4	Canada	6.8	Mexico	7.5	Belgium-Luxembourg	5.1	Belgium-Luxembourg	6.3	Belgium-Luxembourg	6.0
4	Republic of South Africa	6.1	Haiti	6.1	Peru	6.3	Turkey	4.4	Philippines	5.9	Haiti	4.7
5	Brazil	5.9	Turkey	5.7	Canada	5.4	Spain	4.3	Canada	5.3	Canada	4.4
6	Haiti	5.5	Republic of South Africa	4.9	Turkey	5.3	Mexico	3.8	Republic of South Africa	4.5	Republic of South Africa	3.4
7	Mexico	5.3	Switzerland	4.1	Haiti	4.3	Canada	3.5	Haiti	3.3	Guinea	2.7
8	Switzerland	3.8	Liberia	3.9	Republic of South Africa	4.1	Switzerland	3.2	Switzerland	3.0	Netherlands	2.5
9	Ivory Coast	2.9	Netherlands	3.5	Belgium-Luxembourg	4.1	Haiti	3.1	Jamaica	2.9	Liberia	2.4
10	Belgium-Luxembourg	2.9	Mexico	3.5	Jordan	3.7	Republic of South Africa	3.1	Bangladesh	2.7	Turkey	2.4
	Sub-total	59.4		57.8		62.4		58.1		69.3		63.7
-----Million dollars-----												
Value of U.S. rice exports		757		749		829		955		734		551

1/ Percent calculated as proportion of total value of U.S. rice exports.

Sources: U.S. Bureau of the Census, FATUS, Foreign Agricultural Trade of the U.S., USDA, various issues.

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