

# Rice: Suddenly Glamorous Food Crop of the World

by Gene D. Sullivan

An opportunity to double your income in one year and triple it in two! That was the chance rice farmers had during the past two years when tight world grain supplies sent rice prices soaring above the levels at which they had dawdled since records were first kept. Though now retreating from earlier peaks, prices for the expanded 1974 crop also promise to remain well above historical levels.

## Beginning in the Southeast

Rice is one of the oldest known cultivated plants and one of the world's major starchy foods. A relative newcomer to the United States, it first reached prominence during the 1700's along the Southeastern coast.

In the early 1800's, Georgia was a major rice producer, but relatively little was grown in the western area of the Sixth Federal Reserve District.<sup>1</sup> Following the Civil War, labor and capital became scarce in the South Atlantic states and large-scale production became less profitable. Rice production moved west to Mississippi and Louisiana, where labor was more plentiful and soils and water supplies were more favorable to cultivation. Louisiana rapidly became the major production area, and the crop all but disappeared along the Atlantic Coast.

Louisiana held its position as the leading rice producer for over half a century. From 1895 through 1910, in fact, Louisiana alone accounted for over 50 percent of the nation's crop. Production continued to spread westward, however, and the crop became prominent in Arkansas, Texas, and California. Although Louisiana still seeds more acreage to rice than any state, greater relative improvements in other areas' yields have dropped Louisiana to fourth position in total U. S. rice production. With Mississippi's output included, the District states accounted for just over one-fourth of total U. S. rice output in 1973 (see table 1).

<sup>1</sup>The Sixth Federal Reserve District includes all of Alabama, Florida, and Georgia and parts of Louisiana, Mississippi, and Tennessee.

**TABLE 1**  
**RICE PRODUCTION**

<u>Year</u>	<u>Louisiana</u>	<u>Mississippi</u>	<u>District States</u>	<u>U. S.</u>
<b>Acres Harvested</b>				
<b>1,000 Acres</b>				
1950	551	7	558	1,637
1955	526	52	578	1,826
1960	458	44	502	1,595
1965	515	50	565	1,793
1970	523	51	574	1,814
1971	522	51	573	1,817
1972	522	51	573	1,819
1973	620	62	682	2,170
<b>Production</b>				
<b>1,000 cwt.</b>				
1950	10,882	189	11,071	38,820
1955	14,728	1,482	16,210	55,902
1960	13,053	1,298	14,351	54,591
1965	18,282	1,850	20,132	76,281
1970	20,397	2,244	22,641	82,859
1971	19,836	2,346	22,182	85,768
1972	20,136	2,325	22,461	85,439
1973	21,394	2,670	24,064	92,823
<b>Yield</b>				
<b>lbs. per acre</b>				
1953	2,069	2,450	2,099	2,471
1955	2,800	2,850	2,804	3,060
1960	2,850	2,950	2,859	3,423
1965	3,550	3,700	3,563	4,255
1970	3,900	4,500	3,944	4,618
1971	3,800	4,600	3,871	4,718
1972	3,825	4,559	3,920	4,684
1973	3,451	4,306	3,528	4,277
<b>Farm Value</b>				
<b>\$1,000</b>				
1953	63,622	6,370	69,992	274,074
1955	68,632	7,454	76,086	268,547
1960	58,738	6,334	65,072	248,445
1965	87,571	9,361	96,932	376,227
1970	101,169	12,118	113,287	420,530
1971	100,172	13,208	113,380	457,697
1972	133,779	17,205	150,984	561,729
1973*	288,819	46,725	335,544	1,312,517

\*Preliminary

SOURCES: USDA, Agricultural Statistics; Crop Production; Crop Values; Rice Situation.

## Government Assistance

From the beginning, rice growers went through extended periods of depressed prices whenever production exceeded domestic needs. Eventually, this led to governmental intercession in markets on behalf of farmers. A number of approaches were tried without a great deal of success until the passage of the Agricultural Adjustment Act of 1938, which authorized both acreage allotments and marketing quotas for rice. Producers with acreage allotments based on historical production were eligible for price support loans on their total production from the Commodity Credit Corporation. However, because wartime market prices exceeded loan levels and planted rice acreage exceeded that allotted, the loan program was little used until the Fifties.

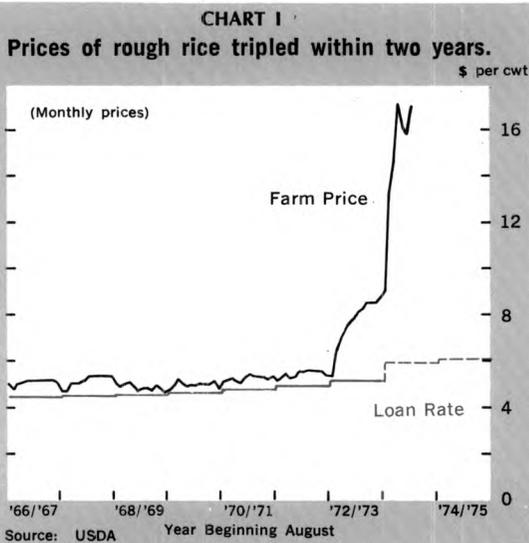
The situation then changed abruptly in 1951 when market prices dipped substantially below the support loan rate, and CCC began to receive large quantities of rice. After the 1955 acreage allotments and marketing quotas were proclaimed and approved by the growers, the Secretary of Agriculture was then authorized to set the national acreage allotment, specifying the maximum acreage that could be grown free of penalty.

In setting the allotment, the Secretary determines the acreage required to produce a sufficient rice supply for domestic consumption, exports, and an adequate stock carry-over. Currently, that allotment is 2,100,000 acres, which is prorated among producing states according to 1956 allotments. States, in turn, assign individual allotments based on production history. For 1974, the District states' allotment has been set at 663,000 acres.

The Secretary must proclaim annual marketing quotas if the total rice supply exceeds the normal supply (the amount required for consumption, exports, and carry-over). If approved by two-thirds of the growers, these quotas go into effect; and growers who exceed their allotted acreage are penalized at rates sufficient to induce compliance.

The Secretary must also declare a CCC loan and purchase rate at a price between 65 and 90 percent of the rice parity price. Parity is that price level which would give a unit of rice the same purchasing power for goods and services used by farmers as in the 1910-14 base period. When market prices fall below the support price, producers are eligible to deliver any or all of their crop to the Commodity Credit Corporation at the loan or purchase rate.

Rice producers have generally been able to increase output per acre faster than input costs have increased. Thus, the support price set even at a minimum rate of parity has been profitable enough to stimulate increased output. Consequent-



ly, rice production has grown far beyond domestic needs, and price support loan levels have generally exceeded world market prices, resulting in the use of export subsidies to dispose of excess rice.

When world grain prices began to increase in mid-1972, the quantity of rice coming into the Commodity Credit Corporation declined. International rice prices moved to such unprecedented levels in 1973 that practically none of the U. S. crop moved into government ownership when price support loans matured in 1974.

But farmers' costs have also risen rapidly, particularly during 1974. Under the parity formula, support prices could again overtake world market prices, which have dropped considerably from their 1973 highs. This could result in renewed government losses from the continued operation of the current rice program.

In hopes of avoiding future government losses, the USDA has recently proposed changes in the rice program aimed at keeping U. S. rice competitive in the world market. The proposals have drawn support from consumer interests and a minority of growers. The proposed changes would in effect make the rice program similar to current wheat, feed grains, and cotton legislation whereby price support loan rates are tied to world market prices and direct payments are made to producers only when prices fall below certain target levels. Producers in large majority are resisting these changes for fear they could not survive without the present program's substantial economic benefits.

### Off-Farm Inputs

If rice production should decline as a result of program changes, the economy's nonfarm segments

would also be affected because of the crop's economic dominance in most areas where it is grown. Rice farms have long been mechanized in the United States, and rice farmers have been heavy users of nonfarm inputs. The machinery investment on rice farms has for many years been larger than in most other types of agricultural production.

Harvesting equipment is the most expensive type used by rice farmers. The combine alone accounted for about one-third of the \$62,000 machinery investment on a medium-sized rice farm in 1971. Large farms in the Louisiana rice area invested up to \$151,000 in machinery.<sup>2</sup>

Other significant equipment includes trucks, mammoth tractors, land levelers, and tillage implements. On farms without access to water provided by irrigation companies, the investment in wells, pumps, power plants, and irrigation canals or pipe requires sizable additional capital. All of these investments, in turn, generate expenditures for fuel and/or electric power, as well as for repairs and maintenance of facilities.

USDA studies show that in the early Seventies the District's variable rice production costs averaged nearly \$100 per acre (see table 2). Labor, fertilizer, seed, and chemical herbicides accounted for the major portion of this annual out-of-pocket expenditure. Fuel, lubrication, and equipment repairs accounted for significant additional expenditures. Based on the 682,000 acres harvested in 1973, the District rice crop generated a \$67-million expenditure. In Louisiana, rice production accounted for about one-sixth of total current farm operating expenses. For the U. S. as a whole, total expenditures probably exceeded \$200 million but are a much less significant component of total farm expenses.

As a result of rapid increases in costs of nearly all input items, seasonal costs for 1974 are estimated to be about two-thirds higher than 1973's levels. On that basis, District rice farmers are projected to spend about \$120 million in producing the expanded 1974 rice crop, and total U. S. expenditures are likely to increase proportionately.

### Processing and Marketing

The Louisiana rice harvest begins in mid to late summer and continues into early fall. Where two crops are obtained, a practice increasingly important along the southern edge of the rice belt, the harvest may continue into November.

<sup>2</sup>W. F. Woolf et al, *Farm Machinery and Equipment Costs In the Southwest Louisiana Rice Area*, Louisiana State University Agricultural Experiment Station, D.A.E. Research Report No. 449, Dec. 1972.

**TABLE 2**  
**Estimated Inputs and Variable Costs**  
**in Rice Production**

Louisiana, 1970<sup>1</sup>

	Quantity ( . . . per acre . . . )	Value	Estimated <sup>2</sup> Total Costs District States
<b>Preharvest inputs:</b>			
Labor	7.33 hrs.	\$30.83	\$21,026,060
Seed	1.33 cwt.	11.82	8,061,240
Fertilizer	4.00 cwt.	12.40	8,456,800
Power and Equipment	—	4.96	3,382,720
Herbicides	—	10.24	6,983,680
Irrigation	—	4.56	3,109,920
Interest	\$63.23	2.21	1,507,220
<b>Total Preharvest Cost</b>		<b>\$77.02</b>	<b>\$52,527,640</b>
<b>Harvest Inputs:</b>			
Labor	2.18 hrs.	\$ 4.02	\$ 2,741,640
Power and Equipment	—	2.11	1,439,020
Combining	—	2.01	1,370,820
Drying	—	13.80	9,411,600
<b>Total Harvest Cost</b>		<b>\$21.94</b>	<b>\$14,963,080</b>
<b>Total Variable Cost Estimates for 1974<sup>3</sup></b>		<b>\$98.96</b> (\$175.72)	<b>\$67,490,720</b> (\$119,841,040)

<sup>1</sup>USDA, *Selected U.S. Crop Budgets, Yields, Inputs, and Variable Costs*, Volume V, South Central Region, ERS 461, April 1971.

<sup>2</sup>Cost per acre multiplied by total acreage for harvest in 1973.

<sup>3</sup>Estimated by economists at the American Rice Growers Association and Texas A & M University.

Harvested grain usually goes first to the rice dryer. These huge upright concrete structures, with a capacity for drying and storing 300,000 hundredweight or more of rice, dot the landscape throughout the rice belt. Increasingly in recent years, farmers have erected their own drying and storage facilities to allow greater flexibility in harvesting and marketing their crop. For the most part, however, off-farm dryers are still used.

A total of 81 commercial dryers are located within an eight-parish area in southwestern Louisiana and are mainly concentrated in Acadia, Calcasieu, Jefferson Davis, and Vermilion Parishes. At an average investment of \$1,425,000 per structure (calculated on a replacement cost basis), commercial rice dryers within the District states represent a total investment of over \$115 million.

The average rice dryer employs about 11 workers, most of them seasonal, with a total annual payroll of approximately \$47,000. For the area as a whole, then, rice dryers generate an estimated employment of about 900 people earning a total payroll of \$3.8 million.

Other major expenses involved in receiving, drying, storing, and loading out rough rice include building and equipment depreciation, interest on investment, property taxes and equipment repairs. The total cost of operating a medium-model rice dryer in 1971 was estimated by the USDA at

\$251,000, with \$109,000 for out-of-pocket expenses. At that rate, total expenses generated by the operation of all rice dryers in Louisiana in 1971 exceeded \$20 million, with approximately \$8.8 million total out-of-pocket expenditures.<sup>3</sup>

After drying, rough rice then moves to the mill, where the brown outer covering on the rice grain is removed. Seventeen mills are located in Louisiana, with the largest concentration at Crowley in Acadia Parish. At an estimated average investment of \$1.4 million per operation, the rice-milling industry represents a total investment of about \$24 million.

Employment at Louisiana rice mills, some of which operate on a full-time basis, totals about 1,150 people, with estimated annual wages and salaries of \$4.8 million. Other operating expenses total almost \$9.0 million on an annual basis.

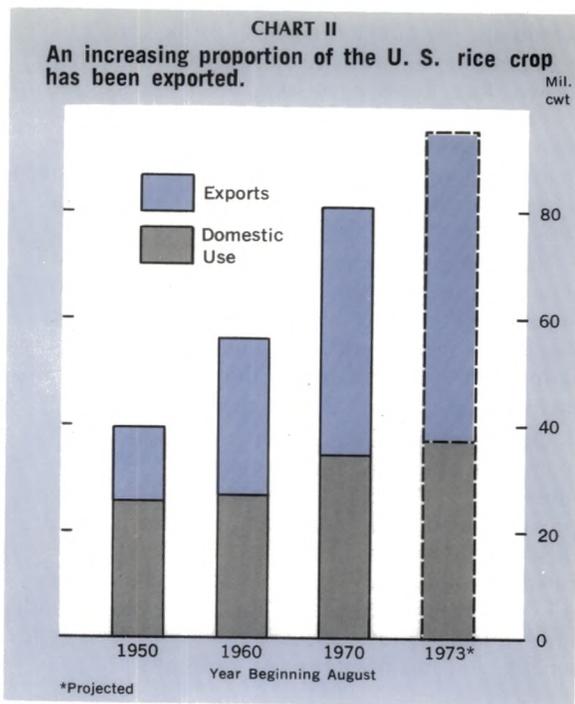
After milling, the rice is packaged for marketing. Rice marketed domestically is usually packaged in one- to five-pound bags and held at the mill until needed to supply the retail market. Rice for export is packaged in 100-pound bags or held in bulk awaiting shipment to overseas destinations.

Rice millers usually take title to the rice they process; they do little processing on a custom basis. Although they may directly market grain to domestic users, millers usually rely upon brokers to handle rice for export.

### Consumption

Rice has always been utilized primarily as a human food product. It is a dietary staple in much of Asia, where annual consumption per capita averages as high as 365 pounds. In the U. S., however, annual consumption has remained rather low—7.0 pounds per person in 1972. Consumption reached 8.3 pounds per person as recently as 1968, but the annual average has hovered near 7.0 pounds despite industry campaigns promoting greater use of rice. One obstacle to its greater market penetration has been that rice, on a per pound basis, has been two to three times more expensive than potatoes, its chief competitor.

Domestic consumption has amounted to about one-third of recent annual rice crops (see figure II). The rice actually consumed from the 1973 crop is projected to reach a new high of 37.2 million cwt., after wavering between 30 and 35 million cwt. through most of the last decade. Total production has increasingly exceeded domestic use, and the excess has moved into the export trade.



### Foreign Markets

Export markets have always been important to U. S. rice producers. In recent years, from 55 to 65 percent of the total annual rice crop has been exported. Even though U. S. rice production is a relatively small portion of the world total, U. S. exports account for about one-fourth of the rice moving in world trade. Prime customers for U. S. rice have been India, Indonesia, and South Vietnam, countries whose purchases accounted for 60 percent of U. S. milled rice exports in 1971.

Because domestic prices have substantially exceeded world prices, subsidies have been required to move U. S. rice into world markets. Various government export assistance programs as well as direct export subsidies have been used to market rice abroad. Without these programs, accumulations of government-owned rice stocks would have reached burdensome proportions.

Since 1955, rice exports under Public Law 480 and other government programs have typically ranged from one-third to one-half of the total U. S. export volume. The majority of government program exports have occurred under Titles I and II of Public Law 480, which authorize sales for foreign currencies and sales under long-term credit arrangements, respectively. Though the actual subsidy involved is difficult to determine, it is generally agreed that such sales reflect

<sup>3</sup>S. H. Holder et al, *Costs of Building and Operating Rice Drying and Storage Facilities in the South*, USDA Marketing Research Report, No. 1011, September 1973.

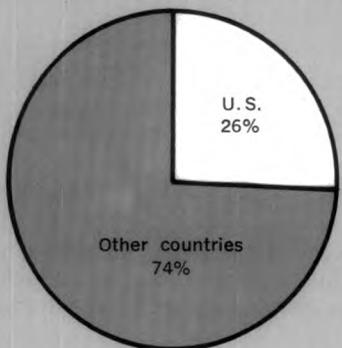
CHART III

In 1972 the U. S. accounted for less than 2% of total world rice production



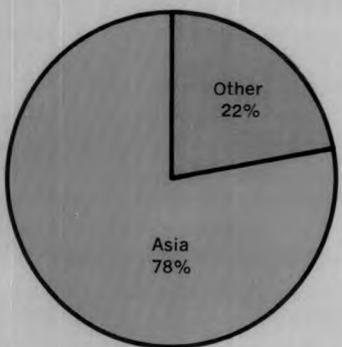
WORLD RICE PRODUCTION

and over one-fourth of world rice exports,



WORLD RICE EXPORTS

three-fourths of which moved to Asia.



U. S. RICE EXPORTS

TABLE 3  
Export Payments On Rice

Crop Year Beginning Aug. 1	Export Payment Per Cwt.*	Total Export Payments (\$ mil.)
1960	\$2.92	\$54.5
1961	2.78	56.4
1962	2.25	54.6
1963	2.28	71.7
1964	2.22	64.5
1965	1.80	54.7
1966	.87	34.2
1967	.56	2.2
1968	.42	5.3
1969	.72	28.2
1970	1.02	37.6
1971	1.81	57.2
1972	1.75	49.8

SOURCES: USDA, Agricultural Statistics, Foreign Agricultural Trade of The U.S., April 1974.  
\*Reflects the gap between the U.S. domestic price and the competitive world price.

substantial concessions to purchasing countries; and, in some cases, these transactions may be equivalent to outright donations. To the extent that long-term credit is eventually repaid in dollars or other hard currencies, however, subsidies would be minimized.

Export payments are forthright government costs that can be readily quantified. From 1960 through the end of 1972 when they were suspended, annual export payments averaged from 42 cents to \$2.92 per cwt. A subsidy of \$1.81 per cwt., paid on 1971 rice exports to make up the difference between world and domestic prices, amounted to a total direct government payment of \$57.2 million (see table 3). Assuming that the ultimate costs of government program exports were at least as much, the subsidy on total rice exports amounted to \$114 million, or one-fourth of the total farm value of the 1971 crop. In 1970, when export payments averaged nearer \$1.00 per cwt., government costs of rice exports were sharply lower.<sup>4</sup>

**Financing**

Rice production, since the mid-1950's at least, has been one of the District states' more profitable agricultural enterprises. Even though other crops can be and are produced within the rice area, seldom has anyone elected to grow another crop on rice allotment acreage. Although in some cases a farmer might plant rice primarily to preserve his history of production, the fact that rice continues to be planted where permissible, even where land is also well adapted to cotton, sugarcane, or other

<sup>4</sup>Although direct export payments were nearly negligible in 1967 and 1968, the annual average from 1960 through 1972 was \$43.9 million, about one-fifth of the comparable average for wheat exports. U. S. wheat acreage is many times larger and more widespread than rice acreage, however.

high-valued crops, is indicative of rice's relative profitability.

Rice's profitability under government programs guaranteeing prices and the relative certainty of producing a harvestable crop whether the weather is excessively rainy or dry tend to make income from rice considerably more certain than that from most other enterprises. This enhances a rice producer's attractiveness for potential lenders.

Rice production has indeed attracted an abundance of financing from the full spectrum of agricultural lenders, who tend to compete rather briskly for both short and long term farm loans. The farmer's demand for real estate credit to finance land purchases, irrigation wells, and equipment accounts for large volumes of long-term credit. Intermediate credit for machinery purchases and short-term credit for seasonal production needs also generate substantial loan demand.

Land prices have recently been recorded at \$900 to \$1,000 per acre in the southwest Louisiana rice area. If loans are limited to only two-thirds of market price, real estate credit extended could average \$600 or more per acre. The potential real estate credit volume of only the acreage planted to rice in 1973 would, at that rate, exceed \$400 million. The 2.4 million acres in the southwest Louisiana rice area alone would represent a total real estate investment in excess of \$2.0 billion and a potential credit volume of at least \$1.4 billion.

Valued at replacement prices in 1971, the machinery investment on a medium-sized rice farm (586 total acres) averaged \$62,000. At that rate, the 5,000 District rice farms have a total machinery investment of more than \$300 million. On the average, this machinery is replaced once each six years. Even though salvage value may be equivalent to one-fourth the original cost, the annual expenditure for rice equipment would still amount to more than \$37 million. This represents a sizable sales volume to equipment dealers, as well as an intermediate term loan volume to area lenders. Machinery loans are typically extended for periods ranging from three to five years. Longer terms are becoming more common as farmers purchase larger, more expensive machinery (such as combines) with longer expected life spans.

Farmers have heavy demands for production credit as well. These short-term funds are typically borrowed in the spring and repaid in the fall after rice harvesting has been completed. Lenders base the credit extended on the expected rice production per acre. In fact, some lenders even base loans on a farmer's actual three-year average yield times the price of rice, adjusted for the reduction in crop receipts that occurs when a farmer leases land and/or water. The actual volume of credit extended per acre reflects the substantial yield variation from one farm to another.

Whereas, until recently the total variable cost of rice production has hovered near \$100 per acre, rapid cost increases for practically all inputs, but particularly for seed, fertilizers, and fuels, have resulted in variable production expenses estimated at \$176 per acre for the 1974 season. Thus, within the span of one year, the District rice farmers' financing requirements for production purposes have increased from \$68 million to \$120 million. Lending agencies have already experienced a commensurate increase in loan volume for the 1974 crop year.

In some cases, the farm loan volume of conventional lenders has increased from the additional effect of merchant credit withdrawal. In the past, merchants have often used liberal credit terms to induce farmers to buy their merchandise. Faced with limited supplies of farm inputs and especially of fuels, fertilizers, and machinery, some merchants are reported to have asked for advance payment to ensure delivery of supplies. Thus, credit agency loans have grown not only from increases in farm input prices but also from the added loan volume formerly handled by merchants.

Rice dryers utilize long-term credit in erecting physical facilities but need little credit for operational purposes. They normally do not take title to the rice they process but assess the farmer a flat charge of 60 to 70 cents per barrel for rice dried and stored. This revenue, which begins to flow in with the first rice sales, usually supplies sufficient funds to meet operating capital needs.

Millers typically purchase the rice they process, and they need substantial credit to finance inventory holdings. These needs are usually met by credit lines with some of the larger regional banks. In the case of export rice, inventories may be financed until the product reaches its ultimate destination and foreign buyers make payment. If the purchaser is not of known reliability, the sale is typically handled through draft arrangements with large international banks so that the miller receives payment when the rice is placed on board ship.

### In Perspective

Rice is an important world food crop, but it has never gained major importance in the U. S. as a whole. However, in some southern localities, particularly within South Carolina and Louisiana, rice is a more prominent component of the diet.

Rice production, in recent years, has been stimulated through government subsidies. Since the majority of the crop has been exported, these expenses are difficult to justify from the standpoint of rice's contribution to the domestic food supply. Food donations and concessionary sales have been an important form of U. S. Government aid to

underdeveloped nations. However beneficial, one might wonder how long the public may be willing to subsidize the production and exportation of rice, largely for the dietary benefit of other nations. The humanitarian aspect of food aid might well be more inexpensively accomplished through direct purchases in the world market where, until recently, rice prices have been substantially lower than domestic prices.

The benefits of government subsidies to rice producers have been substantial in some periods, and these benefits have influenced the total economies in the rice areas. Financial institutions, transportation industries, machinery manufacturers

and dealers, farm supply industries, and retailers of all sorts have benefited from a prosperous rice industry. In addition, rice exports have contributed to a favorable balance of payments in international trade.

Under present world market conditions that some see as a new era of unending growth in demand for food products, it could be that rice farmers might easily survive without assistance. Indeed, if events in 1973 are a portent, the removal of governmental assistance would hardly be noticed. The subsidies that served to preserve the U. S. rice industry until a time of unprecedented need might then be viewed with greater understanding. ■

## Bank Announcements

March 29, 1974

### **BARTOW COUNTY BANK**

*Cartersville, Georgia*

Opened for business as a par-remitting nonmember. Officers: Sam C. Smith, president; Lavoy Moss, vice president and cashier.

March 29, 1974

### **FIRST STATE BANK OF CULLMAN**

*Cullman, Alabama*

Opened for business as a par-remitting nonmember. Officers: James L. Gregory, president; James C. Bailey, vice president; Earlene Love, cashier. Capital, \$400,000; surplus and other funds, \$300,000.

April 1, 1974

### **FIRST CITIZENS BANK OF CLEVELAND**

*Cleveland, Tennessee*

Opened for business as a par-remitting nonmember. Officers: Ken Rayborn, president; Jack Everett, vice president and cashier. Capital, \$618,704; surplus and other funds, \$618,704.

April 3, 1974

### **PALM STATE BANK**

*Palm Harbor, Florida*

Opened for business as a par-remitting nonmember. Officers: Robert E. Prentice, president; Phyllis B. Jones, vice president and cashier. Capital, \$550,000; surplus and other funds, \$550,000.

April 3, 1974

### **PAN AMERICAN BANK OF ALTAMONTE SPRINGS**

*Altamonte Springs, Florida*

Opened for business as a par-remitting nonmember. Officers: Gilbert L. Lewis, president; James W. Schwartz, vice president and cashier. Capital, \$600,000; surplus and other funds, \$600,000.

April 5, 1974

### **FIRST BANK**

*Pineville, Louisiana*

Opened for business as a par-remitting nonmember.

April 10, 1974

### **ATLANTIC BANK OF CONWAY**

*Orlando, Florida*

Opened for business as a par-remitting nonmember. Officers: William B. Edmands, chairman of the board; Kenneth L. Nield, president; D. Charles Anderson, vice president and cashier; Robert E. Mess, assistant cashier. Capital, \$500,000; surplus and other funds, \$532,991.45.

April 15, 1974

### **WEST CENTRAL GEORGIA BANK**

*Thomaston, Georgia*

Opened for business as a par-remitting nonmember.

April 16, 1974

### **THE EXCHANGE BANK OF WESTSHORE**

*Tampa, Florida*

Opened for business as a par-remitting nonmember. Officers: L. M. Anderson, Jr., chairman of the board; F. R. Leverage, president and CEO; A. G. Divers, vice president.

April 22, 1974

### **FIRST NATIONAL BANK OF LEBANON**

*Lebanon, Tennessee*

Opened for business as a member. Officers: R. Eugene Roberts, president; William C. Cothorn, vice president and cashier. Capital, \$300,000; surplus and other funds, \$450,000.