



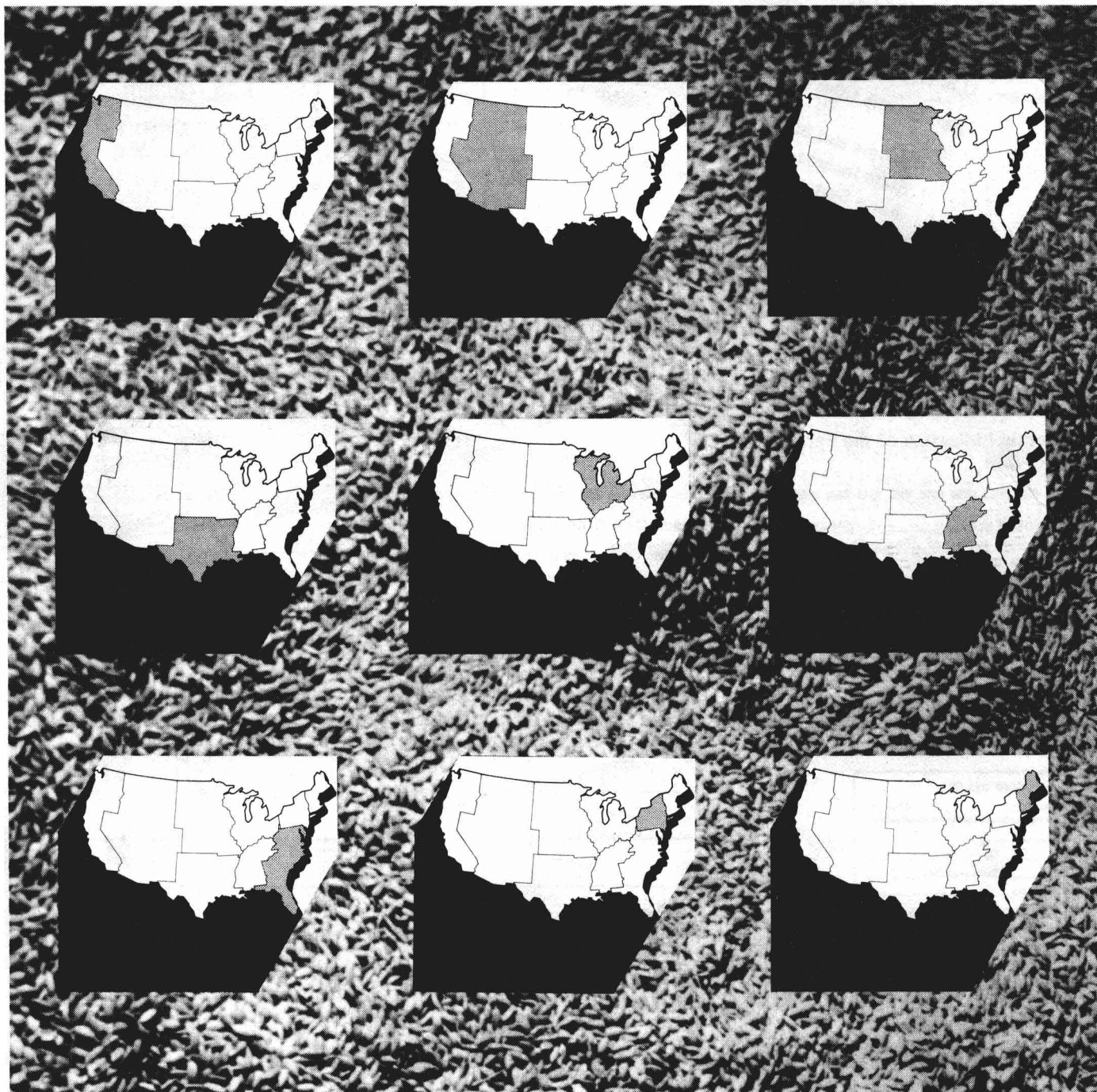
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# U.S. Rice Distribution Patterns, 1980/81

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#### ABSTRACT

Rice mills and repackagers distributed 31 million hundredweight (cwt) of rice for domestic use in 1980/81, up 14 percent from previous survey findings in 1978/79. The three major outlets--direct food use, beer, and processed foods--received shipments of 18.8, 7.7, and 4.5 million cwt, respectively. Direct food use set a record and pushed per capita consumption to 8 pounds from 7 pounds in 1978/79. Regular-milled, long grain white rice accounted for 71 percent of total direct food use.

Key words: Rice, major outlets, regional distribution, package size, origin/destination.

#### PREFACE

Special appreciation is expressed to the rice milling and re-packaging firms cooperating in the survey, to those completing the questionnaire, and to the Rice Miller's Association and The Rice Council. Special recognition is due Barbara McClenathan for her assistance in data entry and verification.

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## INTRODUCTION

The rice distribution survey, conducted periodically since 1955/56, provides detailed data on national rice distribution patterns.<sup>1/</sup> Survey findings on proportional market shares and shifts in market outlets aid economic analysis of the rice industry and help guide efforts to expand domestic consumption of rice and rice products.

This study provides domestic rice distribution data for the 1980/81 marketing year, including shipments of rice for direct food use by State and region, package size, and rice type, and shipments to U.S. territories by package size and type. This report also includes a set of tables showing origin and destination of shipments.

Data are based on information reported by 48 of 53 known active rice mills in 1980/81 and 6 of 12 rice repackagers. The 48 mills accounted for 90 percent of the rice shipments for domestic direct food use and 95 percent of the total used for beer brewing. The six repackagers accounted for 93 percent of the rice reported shipped to repackagers by mills.

## DISTRIBUTION TO MAJOR DOMESTIC OUTLETS

Domestic use of rice continues to expand, with rice used directly for food leading the way among the three principal outlets: direct food use, beer, and processed foods (fig. 1).

### Direct Food Use

Direct food use accounted for 61 percent of the 31 million hundredweight (cwt) of rice distributed for domestic consumption in 1980/81 (table 1). Regular-milled white rice made up over 80 percent of the 19 million cwt shipped for direct food use. Specialty rice distributions have increased substantially since 1978/79, and at 3.4 million cwt, accounted for the remaining direct food use in 1980/81 (table 2).

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<sup>1/</sup> Previous surveys are reported in An Analysis of U.S. Rice Distribution Patterns, AER-413, Econ. Res. Serv., U.S. Dept. Agr., Nov. 1978, and U.S. Rice Distribution Update, SB-640, Econ. Res. Serv., U.S. Dept. Agr., July 1980.

Parboiled rice, at nearly 2 million cwt, took 58 percent of the specialty rice market, followed by precooked rice (fig. 2). Precooked rice passed the 1-million-cwt level for the first time in 1980/81.

About two-thirds of the rice shipped for direct food use in the continental United States was vitamin enriched (table 3). In addition to the powder and rinse-resistant premix forms of enrichment, other vitamins such as riboflavin and vitamin D are sometimes included. About a fourth of the reported shipments for direct food use had riboflavin added.

### Beer

Beer brewers used about one-fourth of the rice in the total domestic market in 1980/81. Tighter brewers rice supplies and higher prices held 1980/81 use of rice in beer near the 1978/79 level. Mills for which data were reported shipped brewers a total of 7.7 million cwt, about 375,000 cwt short of the use reported by the beer industry. Nonrespondents accounted for part of this difference; however, some of the difference is due to stocks management. Higher brewers rice prices in 1980/81 probably drew down industry stocks lower than usual. Thus, reported mill shipments of rice to brewers in 1980/81 were less than actual industry use.

The beer industry uses mostly broken rice but whole kernel rice is purchased when supplies of brokens are tight as in 1980/81 (fig. 3). Although mills reported shipments of 901,000 cwt of whole kernel, mostly long grain, to beer brewers in 1980/81 (table 4), brokens still accounted for 88 percent of the total.

### Processed Food Use

Distribution to cereal and package mix processors was about 24 percent greater in 1980/81 than in 1978/79, with reported use in cereals increasing to 2.6 million cwt and package mixes to 1.4 million cwt (table 4). Cereal processors use predominantly medium grain rice, while long grain rice accounts for about two-thirds of rice use in package mixes (fig. 3).

### DISTRIBUTION BY REGION, TYPE, AND PACKAGE SIZE

U.S. per capita consumption of rice for direct food use averaged 8 pounds in 1980/81, up 1 pound from 1978/79. Per capita consumption increased in all regions, compared with 1978/79 (table 5), and ranged from about 3 pounds in the East South Central region to almost 14 pounds in the Pacific region (table 5 and fig. 4).<sup>2/</sup>

The Pacific region accounted for nearly a fourth of the total rice distributed for direct food use (table 6 and fig. 5). California was the largest user and accounted for approximately 68 percent of the region's total. The Middle and South Atlantic regions ranked second and third, respectively, in total distributions for direct food use. Together the regions accounted for 7.2 million cwt or 39 percent of the total (table 6). Total distribution to each region varied from less than 500,000 cwt to nearly 4,500,000 cwt.

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<sup>2/</sup> See table 6 for States included in each major geographic region.

Long grain rice continued to increase its share of total distributions for direct food use and averaged 71 percent of the U.S. total in 1980/81 (table 6). Consumers in the Mountain and Pacific regions were the heaviest users of medium grain rice.

The trend toward larger package sizes continued. Proportional shares for both 5- to 10-pound and 25- to 100-pound packages increased in 1980/81 compared with 1978/79. Sales in package sizes from 25 pounds up to (but not including) 100 pounds totaled 6.8 million cwt, or almost 37 percent of the distributions for direct food use (table 6). Although dropping in terms of proportional share, packages of less than 5 pounds still ranked second in popularity. Nearly 5 million cwt or about a fourth of the total was distributed in this size group.

Distribution in packages of less than 10 pounds was greatest in the Middle and South Atlantic regions (figs. 6 and 7), 10 to 25 pounds in the Middle Atlantic and Pacific regions (fig. 8), and 25 to 100 pounds in the West South Central and Pacific regions (fig. 9). Bulk shipments (100 pounds or greater) accounted for only 2 percent of the distribution for direct food use, and were greatest in the Middle and South Atlantic and West South Central regions (fig. 10).

#### EXPORTS AND SHIPMENTS TO TERRITORIES

The 48 mills reporting distribution data exported 76 million cwt of rice in 1980/81. Proportional shares by long, medium, and short grain were 63, 32, and 5 percent, respectively. Shipments of over 1 million metric tons of medium grain rice to South Korea in 1980/81 increased medium grain's share of the total export market. Almost 90 percent of the rice milling firms participating in the 1980/81 rice distribution survey had a share of the export market. Less than 40 percent shared in shipments to territories.

The 76 million cwt of milled rice exports reported here is considerably higher than that reported by either the Bureau of Census or industry sources in 1980/81. Our figures, if correct, would help explain the 9 to 10 million cwt of rice unaccounted for in 1980/81. When our 76-million-cwt export figure is added to the domestic shipments of the 48 mills, total disappearance for 1980/81 is 110 million cwt, accounting for 7 to 8 million more cwt of rice than the 102- to 103-million-cwt total milled rice disappearance figure reported in Government and industry statistics.

Rice mills and repackagers reported shipments of 3.4 million cwt of rice to U.S. territories in 1980/81, virtually unchanged from 1978/79 (table 7). Puerto Rico accounted for 94 percent of the total. By type, long grain rice accounted for 8.2 percent, with the remaining distribution fairly evenly split between medium and short grain. About half of the rice shipments to territories were bulk or in 100-pound bags, with most of the remainder in packages of less than 5 pounds.

MILL ORIGIN AND  
DESTINATION

Fifty-three mills owned by 39 firms, 6 of which are cooperatives, processed rice in 1980/81.<sup>3/</sup> Total rice volumes processed by these 39 firms ranged from less than 100,000 cwt (rough basis) to several million cwt. As might be expected, domestic and export market shares of each of the 39 firms varied considerably depending upon location, economic and marketing power, and marketing strategy.

Numbers of active rice mills in the major rice-growing States in 1980/81 ranged from 3 in Mississippi to 16 in Arkansas. The major milling centers were Stuttgart, Ark., Houston, Tex., and Sacramento, Calif.

Arkansas-  
Mississippi <sup>4/</sup>

The Arkansas-Mississippi mill area ranked second in distribution for direct food use with over 6 million cwt of rice (table 8). The area's biggest direct food use markets were the Middle and South Atlantic regions. The Middle Atlantic region alone accounted for 2 million cwt (fig. 11). This mill area also shipped large quantities to the East North Central, West South Central, and Pacific regions. Shipments to the Pacific region primarily reflect demand for long grain rice, which was not produced on a commercial scale in California in 1980/81.

The Arkansas-Mississippi mill area was the foremost supplier of rice to processors, particularly for cereals, package mixes, and beer (table 13 and fig. 12). This mill area supplied 70 percent of the 1980/81 reported rice mill shipments to cereal processors, 82 percent of shipments to package mix processors, and 62 percent of shipments to beer brewers.

Louisiana

Among all mill areas, Louisiana supplied the least amount of rice for U.S. direct food use. Distributions from Louisiana were heaviest in the West South Central region, with the Middle and South Atlantic regions next in importance (table 9 and fig. 13).

The Louisiana mills that supplied rice distribution data shipped over 543,000 cwt to Puerto Rico in 1980/81 (table 12), mostly in packages weighing less than 5 pounds. Ninety-eight percent of those shipments were medium grain rice.

Louisiana's reported rice shipments to domestic processors in 1980/81 were used in beer and breakfast cereals (table 13).

Texas

Texas mills, combined with their affiliated plants in other States, accounted for over 40 percent of the rice distributed for direct food use in the United States. Total reported distribution of 7.5 million cwt made Texas the predominant supplier to the direct food use market (table 10). Every State received rice from Texas mills, but shipments were heaviest to the West South Central, Middle and South Atlantic,

<sup>3/</sup> Some firms had more than one mill at a single location. Each mill was counted separately.

<sup>4/</sup> Mississippi mills were included with Arkansas to avoid disclosure of individual mill operations and markets.

and Pacific regions (fig. 14). Respectively within these regions, distributions of rice were greatest to Texas, New York, Florida, and California. With the exception of Florida, each of these States received over 1 million cwt from Texas mills and affiliates, over 90 percent of which was long grain rice.

Texas area mills also ranked first among other southern milling areas in rice shipments to Puerto Rico, with reported distributions of nearly 1 million cwt in 1980/81 (table 12). This was a third greater than that reported in 1978/79.

### California

California mills ranked first among all milling areas in shipments of rice to Puerto Rico in 1980/81, with a total of 1.7 million cwt (table 12). However, California's share continued to decline in favor of mills in the southern rice milling area.

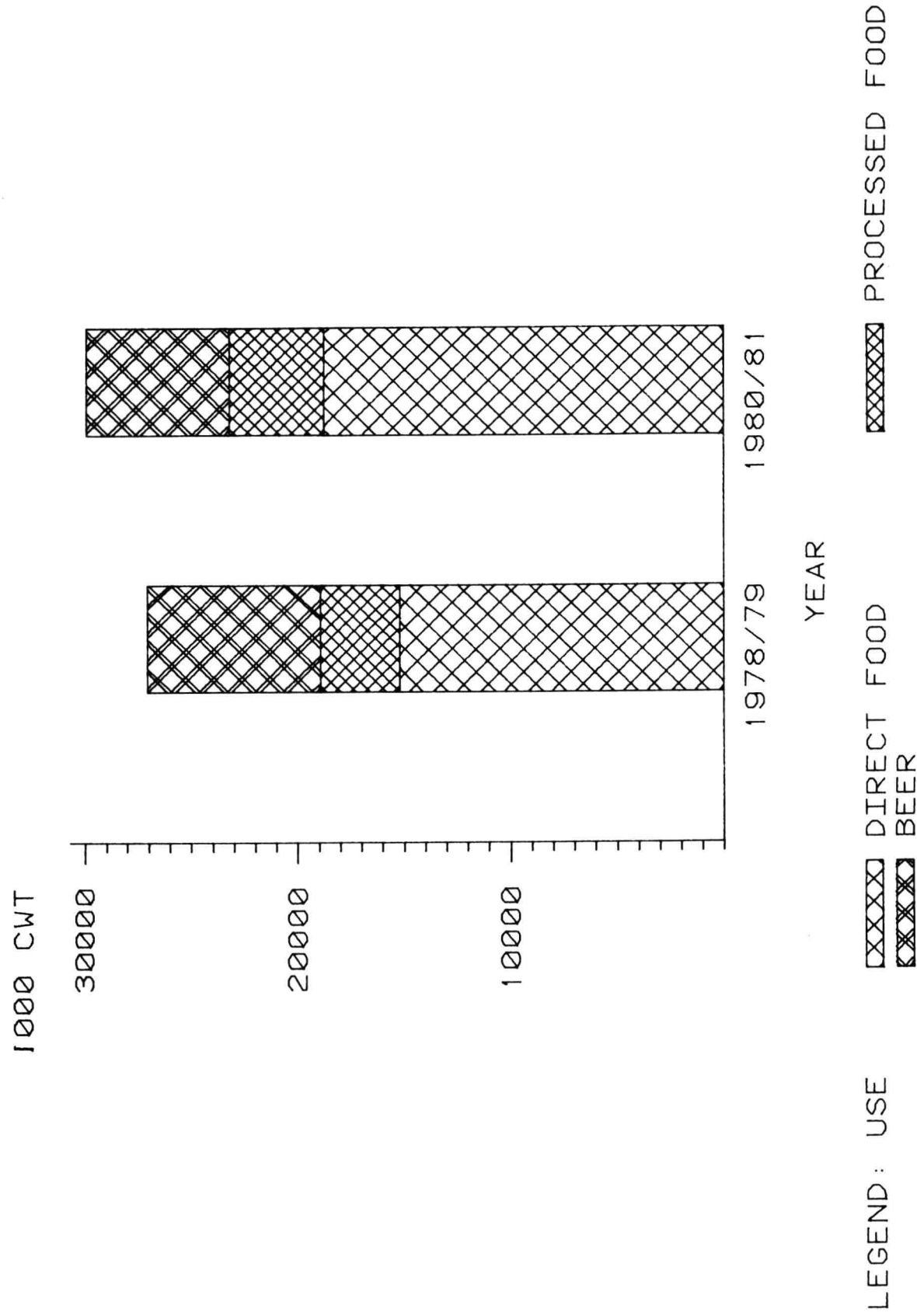
California mills ranked second in volume of rice shipments to breakfast cereal manufacturers and supplied all of the reported short grain rice in 1980/81 (table 13). Shipments to beer processors dropped dramatically during this period as increased processing of brown rice for the South Korean export market tightened the supply of brewers rice in California.

About 3 million cwt of rice was distributed for direct food use, about 83 percent of which was to the Pacific region (table 11 and fig. 15). California and Hawaii accounted for 72 percent of this total. Eighty-eight percent of total shipments was medium grain rice.

California mills captured only 55 percent of the direct food use market in the Pacific region, primarily because this State did not produce long grain rice on a commercial scale in 1980/81. Over 2 million cwt of total rice shipped to the Pacific region for direct food use in 1980/81 was long grain.

California producers planted 14,000 acres of long grain rice in 1982, the State's first commercial-scale planting of this type. If long grain becomes established in California, rice milling firms in that State have the potential for capturing a large share of the long grain milled rice market in the Pacific region. This could, in the long run, have a significant impact on the southern rice milling area, particularly Texas and Arkansas mills.

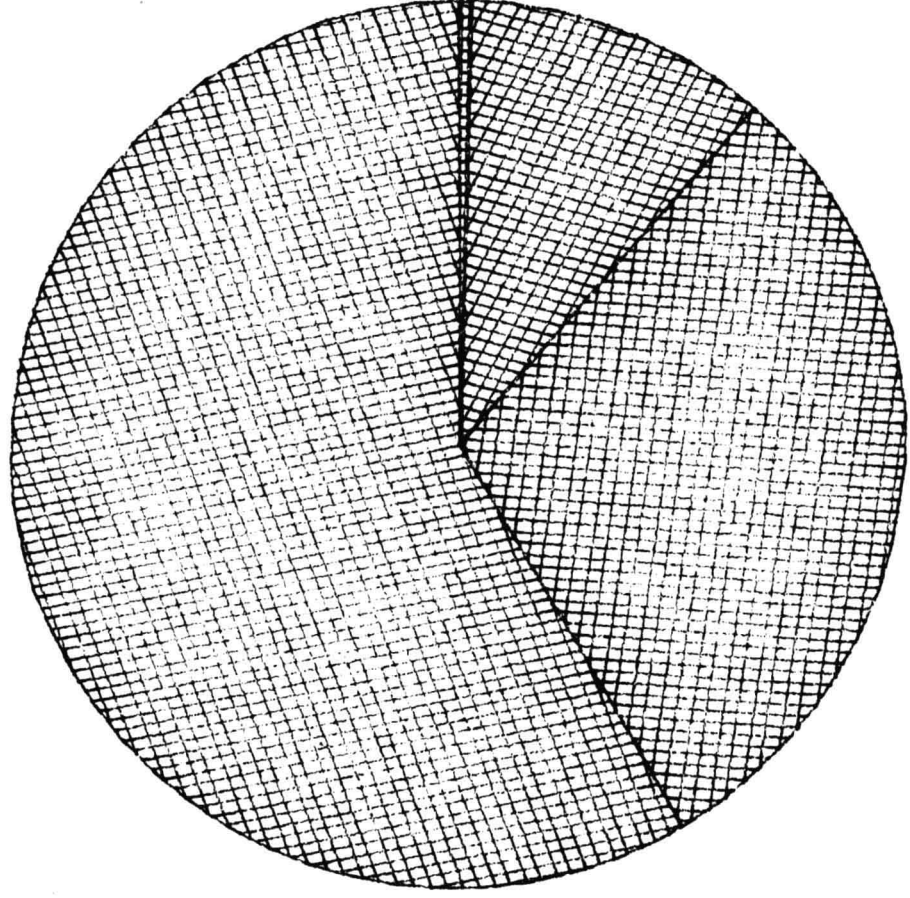
FIGURE 1— DISTRIBUTION OF MILLED RICE  
TO PRINCIPAL DOMESTIC OUTLETS



# FIGURE 2-- SPECIALTY RICE DISTRIBUTED

BY MILLERS AND REPACKAGERS, 1980/81

PARBOILED  
1988.6



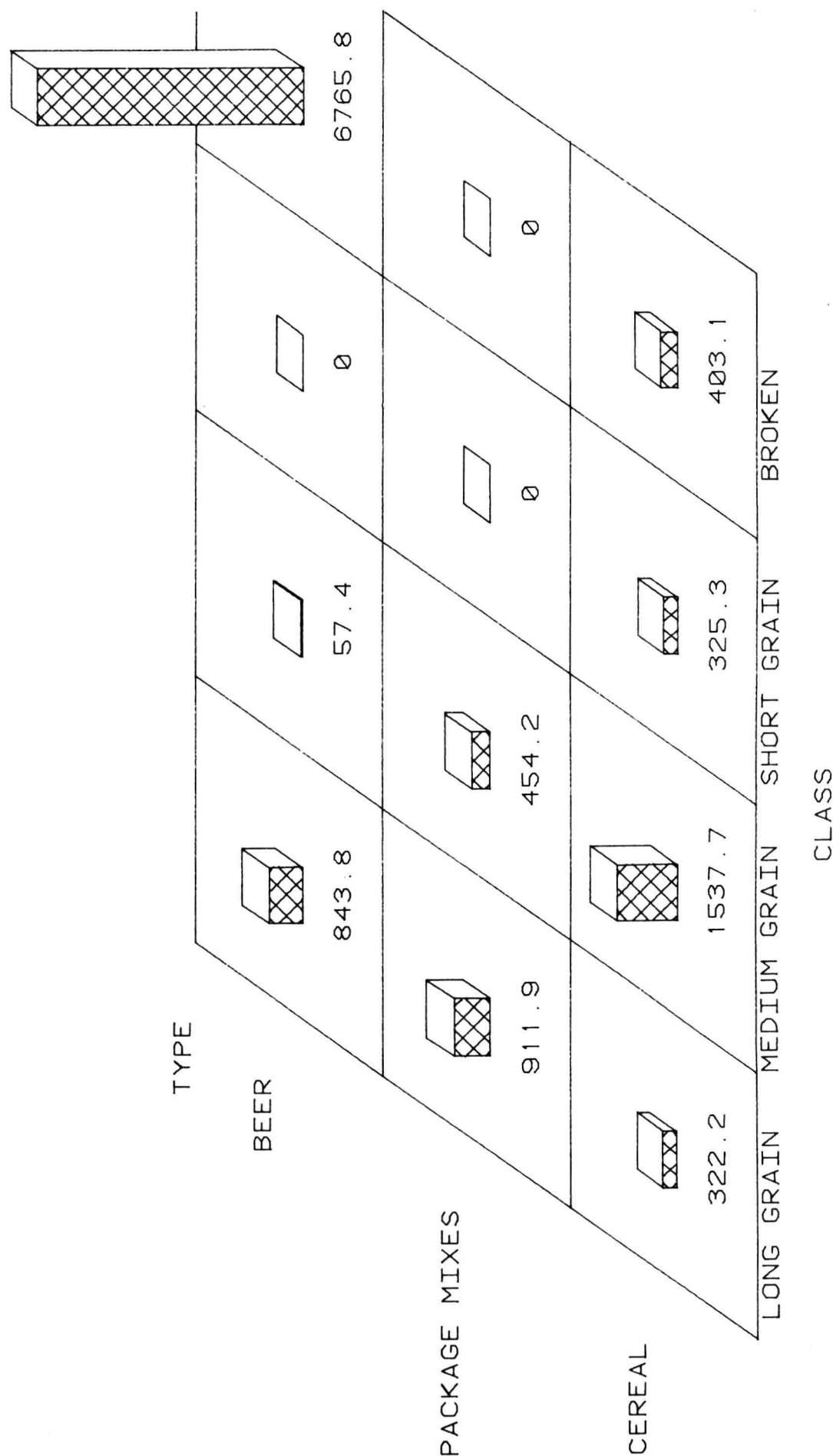
OTHER  
15.5

BROWN  
375

PRECOOKED  
1029.2

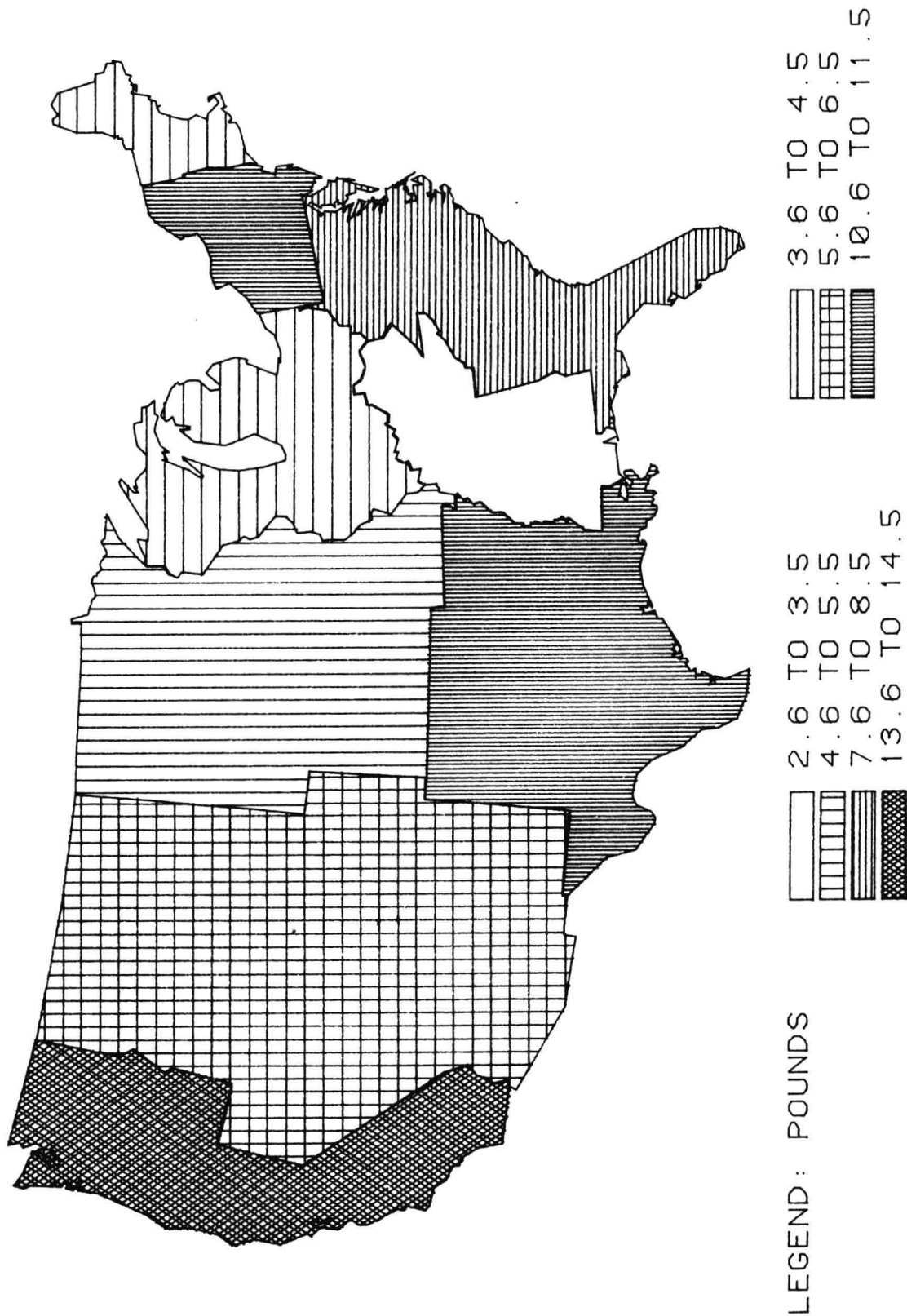
# FIGURE 3— DISTRIBUTION OF RICE TO PROCESSORS

OF CEREALS, PACKAGE MIXES, AND BEER  
BY TYPE OF RICE, 1980/81



# FIGURE 4— PER CAPITA CONSUMPTION OF RICE

BY MAJOR U.S. REGIONS, 1980/81



# FIGURE 5— DISTRIBUTION OF RICE FOR DIRECT FOOD USE

BY MAJOR U.S. REGIONS, 1980/81

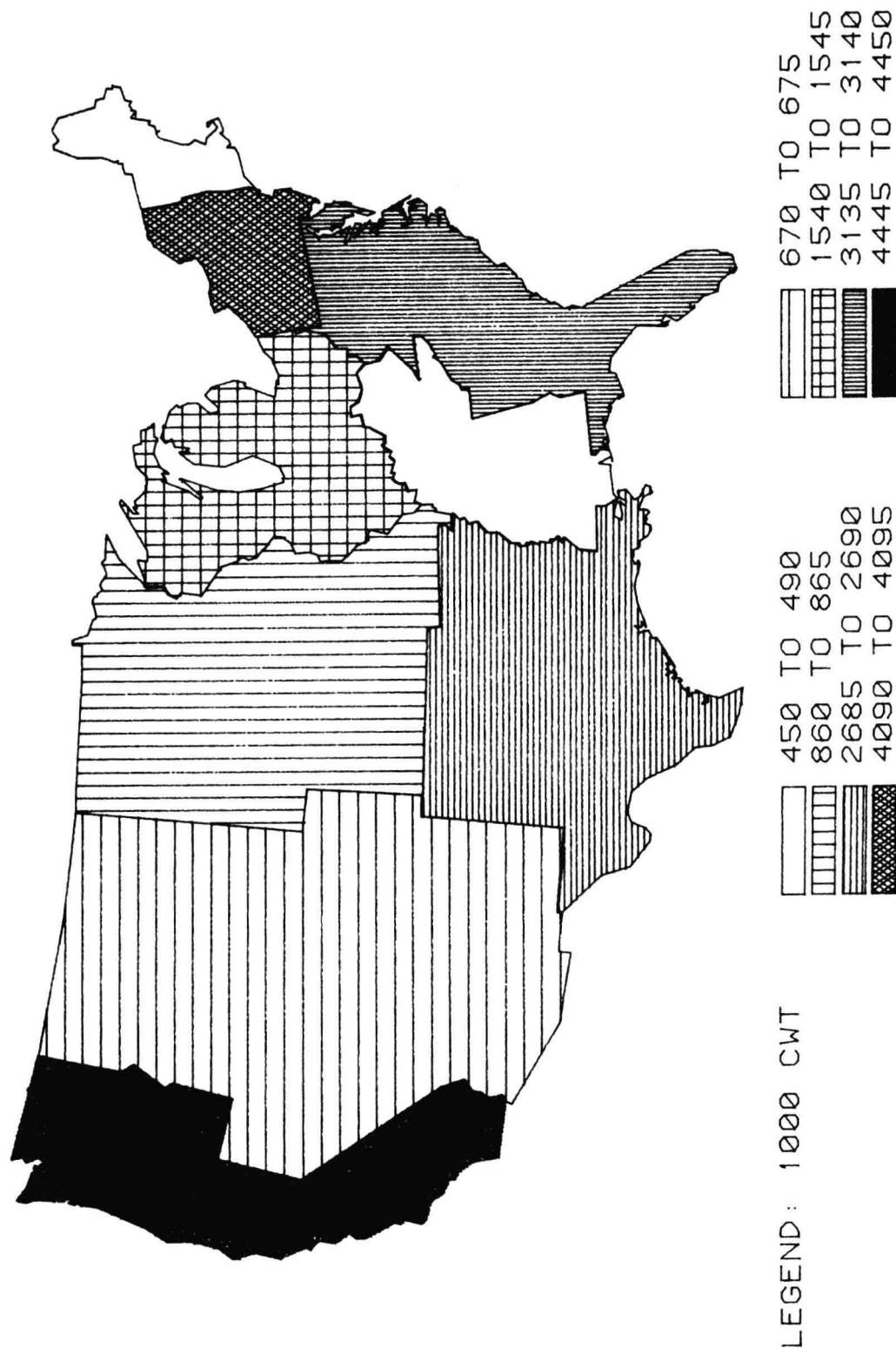


FIGURE 6— DISTRIBUTION OF RICE FOR DIRECT FOOD USE  
IN 0-5 POUND PACKAGES, BY MAJOR U.S. REGIONS, 1980/81

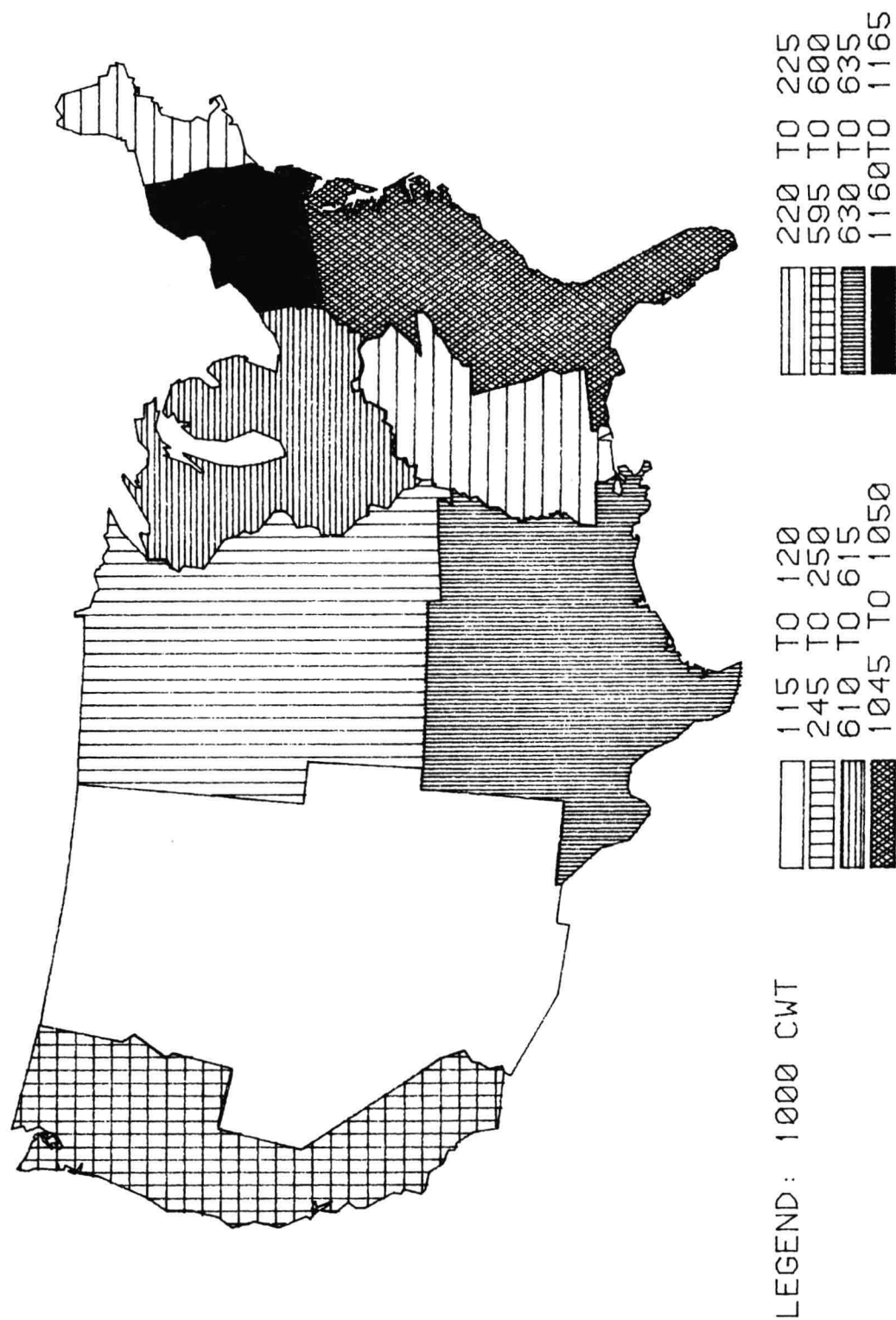


FIGURE 7— DISTRIBUTION OF RICE FOR DIRECT FOOD USE  
IN 5-10 POUND PACKAGES, BY MAJOR U.S. REGIONS, 1980/81

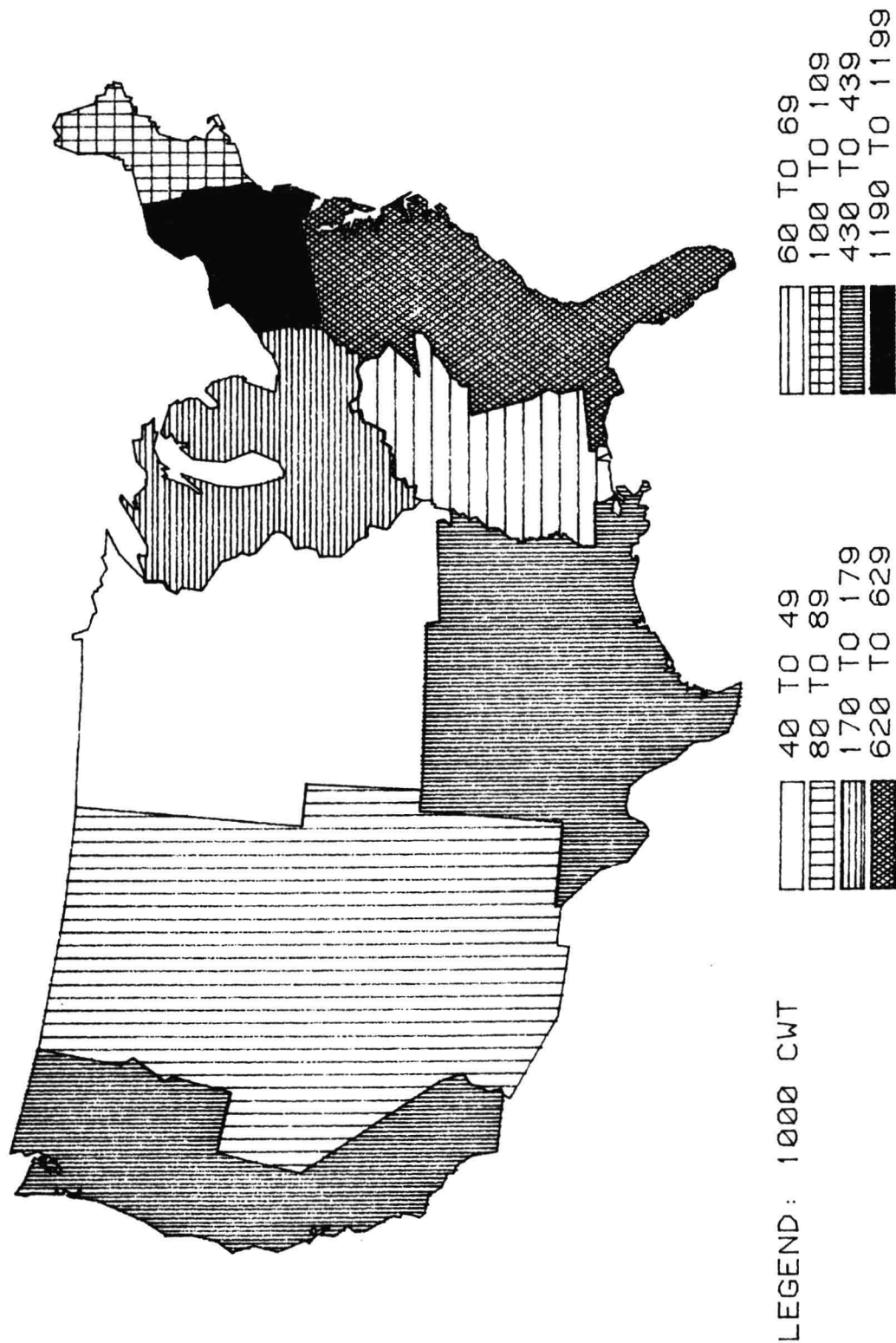
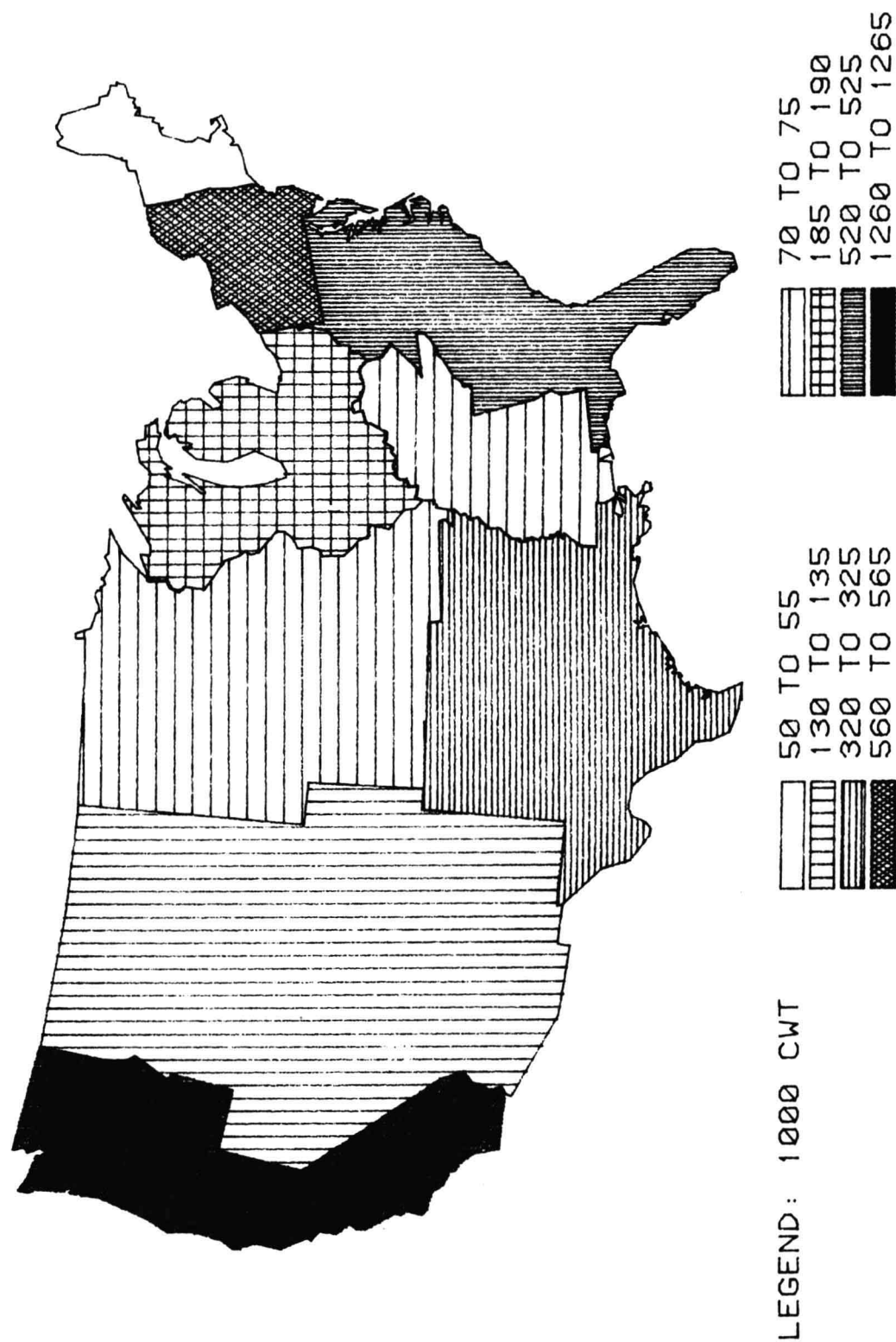


FIGURE 8— DISTRIBUTION OF RICE FOR DIRECT FOOD USE  
IN 10-25 POUND PACKAGES, BY MAJOR U.S. REGIONS, 1980/81



# FIGURE 9— DISTRIBUTION OF RICE FOR DIRECT FOOD USE

IN 25-100 POUND PACKAGES, BY MAJOR U.S. REGIONS, 1980/81

