



AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search

<http://ageconsearch.umn.edu>

aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

Americans Are Eating More Rice

Nathan Childs
(202) 219-0840

Although rice has not historically been a major item in the American diet, U.S. consumption is on the rise and is expected to continue increasing during the rest of the 1990's.

Continuing to move rice away from merely side-dish status at meals will be the fast-growing Asian-American and Hispanic-American populations, improved health awareness among consumers coupled with a perception of rice as a healthy food, greater convenience in preparing rice, tastiness of rice with many entrees, a large variety of prepared rice dishes and flavored mixes available, a greater number of restaurants serving rice dishes, and adaptation of rice by-products (such as brokens, rice bran, and rice-bran oil) to new consumer uses.

Prior to the 1989/90 market year for rice, more rice was exported from the United States than was eaten or used in beer by Americans each year. In the 1990's, however, U.S. rice exports have shown little long-term growth, and domestic use has exceeded exports. Today, domestic consumption is outpacing population growth, leading to continued growth in per capita use.

Growth in use will likely be strongest among processed products—specifically packaged rice mixes—as demand for prepared foods continues to grow. Use of rice in pet food should continue to expand, as premium high-quality lines see greater sales as the economy picks up. Growth will also likely remain strong for certain specialty rices, such as brown rice, as consumers demand fiber-rich foods.

Use Soars, Diversifies Since the Late 1970's

During the 1970's, total U.S. rice consumption (including imports, which were minute during that period) grew 27 percent. But in the 1980's, consumption rose 76 percent. Per capita consumption, including brewers' use, was nearly 22 pounds in 1991—double the amount in 1975. If present growth rates continue, per capita use



U.S. consumption of rice is on the rise and is expected to continue increasing during the rest of the 1990's. If present growth rates continue, per capita use should be at least 25 pounds by 1995.

The author is an agricultural economist with the Commodity Economics Division, Economic Research Service, USDA.

should be at least 25 pounds by 1995.

U.S. rice consumption is divided into three categories: direct food use, processed food, and beer. Direct food use is the largest category and includes regular milled white rice as well as specialty rices, such as parboiled, precooked, precooked-parboiled, precooked-parboiled brown rice, brown rice, and aromatic rice (see box).

The share of the domestic rice market going to direct food use has averaged almost 59 percent during the last decade, while that going to processed food has expanded from 14 to over 21 percent. Brewers' share has declined from 25 to under 20 percent.

Trend Will Likely Continue With Changing Ethnic Mix

As the number of Americans who eat rice as a primary staple in their diet increases, direct food use could expand in the 1990's at a greater pace than during the 1980's.

Asian-Americans and Hispanic-Americans consume more rice per person than does the U.S. popula-

tion as a whole. Some consumer surveys indicate that, in certain localities, Asian-Americans eat up to 150 pounds of rice a year, compared with the national average of around 18 pounds. Currently the fastest growing ethnic group in the United States, Asian-Americans have contributed to the increasing per capita rice consumption.

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

Hispanic-Americans are the Nation's second fastest growing population group, increasing 53 percent during the 1980's. Hispanic-Americans accounted for 9 percent of the total U.S. population in 1990.

African-Americans also eat more rice per capita than the national average, and their numbers are growing faster than the population as a whole. The African-American population expanded 13.2 percent between 1980 and 1990, to constitute 12.1 percent of the Nation.

Specialty Rices Have Become More Popular

Direct food use of rice expanded faster in the 1980's and early 1990's than during the previous 15 years. And, consumption of domestically grown specialty rice has risen at a faster pace than regular milled white rice.

Domestic specialty rices' share of direct food use rose from 18 percent, or 3.4 million hundredweight (cwt) in 1980/81, to about 21 percent (6 million cwt) in 1990/91. These figures would be even higher if they included imported specialty rices and specialty rices used in processed foods. Such imports, which came to almost 3.5 million cwt (milled basis) in 1990/91, have been expanding.

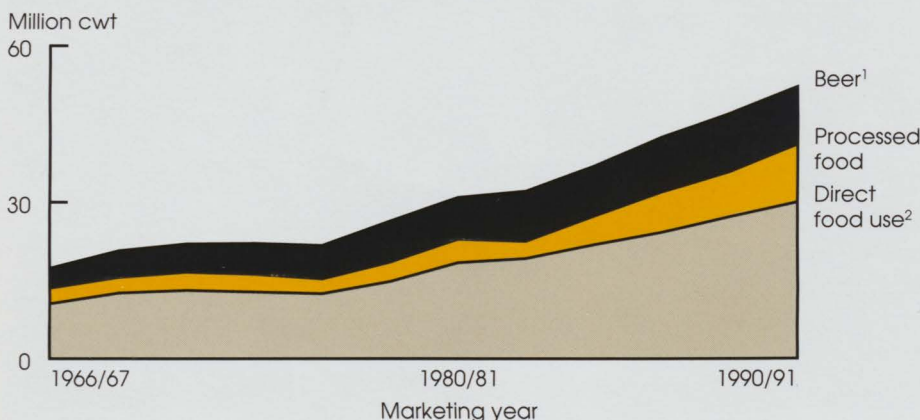
Growth over the last decade has been strongest for brown rice and parboiled (including precooked-parboiled) rice. These two specialty rices are perceived as nutritious, rich in vitamins and minerals, an aid to good health, and good sources of fiber.

Parboiled

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 during milling are retained in the kernel of the rice. All parboiled rice is southern long grain. Parboiled rice has superior milling qualities—fewer kernels are broken in the process—compared with regular milled white rice.

Although it takes more time, parboiled rice is also easier to cook than regular milled white rice, disintegrates less during cooking, remains better separated, and sticks together less. Parboiled rice retains its shape, texture, and taste longer after cooking than does regular milled white rice. These are important properties for restaurants that place food under heat lamps or in

Figure 1
U.S. Rice Consumption Has Soared Since the Late 1970's



¹Treasury Department data. ²Includes imports, specialty rices, and regular milled white rices.

Separating the Different Types of Rice

Aromatic Rice

These scented rices include basmati and jasmine rice.

Basmati rice has a distinctive odor when cooked, has a desirable taste, doubles its grain length, and the grains remain completely separate. Basmati rice is grown mostly in the Punjab area of central Pakistan and northern India, and is mainly bought by higher income Middle Eastern countries and the United States. Basmati rice is sold at prices roughly double those for long-grain rice.

Also includes jasmine rice, which is a fragrant rice preferred by much of the Asian community in the United States. Jasmine rices cook soft, moist, and clingy. Almost all jasmine rice imports are from Thailand.

Brewers' Rice

The smallest size of broken rice fragments. Used in making pet foods and as a source of carbohydrates in brewing.

Brokens

Kernels of rice that are less than three-fourths of the length of the whole kernels. Brokens are used in beer, processed foods, and pet foods.

Brown Rice

Whole or broken kernels of rice from which only the hull has been removed. Brown rice may

be eaten as is, or may be milled into regular-milled white rice. Cooked brown rice has a slightly chewy texture and a nutty flavor. The light brown color is caused by the presence of seven bran layers, which are very rich in minerals and vitamins—especially the B-complex group.

Head Rice

Whole kernels of milled rice. The kernel must be at least three-fourths the length of a whole kernel.

Parboiled Rice

Rough rice soaked in warm water under pressure, steamed, and dried before milling. Parboiled rice cooks up fluffier and sticks together less than does regular milled white rice. Desired by consumers who like a chewy and wholesome taste, but takes longer to cook than regular milled white rice.

Precooked Rice

Rice that has been cooked and dehydrated after milling. This reduces the time required for cooking. Includes quick-cooking rices, instant rices, and boil-in-the-bag rices.

Rice Bran

The outer cuticle layers and germ directly beneath the hull. This is removed during the milling process. Rice bran is rich in protein and natural B-vitamins.

Rice oil is extracted from rice bran.

Rough Rice

Also called paddy rice, is harvested, whole-kernel rice with the hull remaining. Rough rice is sold to mills for dehulling and polishing.

Second Heads

Fragments of grains broken during milling, which are at least one-half as long as whole kernel but less than three-fourths. This is the largest size of broken rice.

Grain Sizes

Rice in the United States is produced and marketed according to three Government-established grain size and shape types—long, medium, and short. The length/width ratio is 3.0 or more for long-grain rice, 2.0-2.9 for medium-grain rice, and 1.9 and below for short-grain rice.

Long-grain rice accounts for about 70 percent of U.S. rice production, medium-grain almost 30 percent, and short-grain less than 1 percent. Most long-grain rice in the United States is grown in the southern producing area (Arkansas, Louisiana, Mississippi, Missouri, and Texas). Over half of all medium-grain rice comes from California, with Arkansas and Louisiana providing most of the remainder. Almost all short-grain rice is produced in California.

microwaves, as well as for use in canned soups and frozen dinners.

Total consumption of parboiled rice (including precooked-parboiled rice) increased from 2 million cwt in 1980/81 to 4.2 million in 1990/91. Precooked-parboiled rice

showed the only growth in this product category since 1988/89.

Precooked

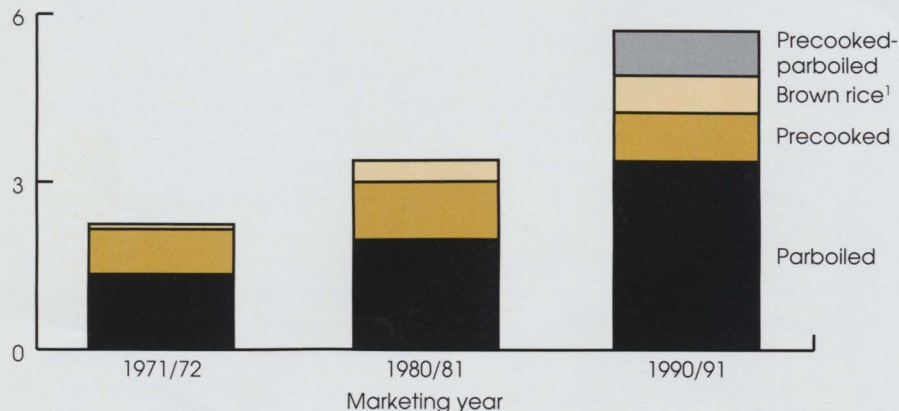
Consumption of precooked-regular milled white rice (including instant) has dropped from over

1 million cwt in 1980/81 to about 870,000 cwt in 1990/91. Once precooked, the rice may have an inferior taste and texture compared with regular milled white rice. Due to improved quality, precooked-parboiled rice has replaced some

Figure 2

The Rising Popularity of Parboiled and Brown Rice Pushes Up Consumption of Specialty Rices

Million cwt



Note: Precooked-parboiled rice was not included in the survey questionnaire until 1986/87.

¹Includes brown rice used in processed foods in 1990/91.

sales of precooked rice. Sales of precooked-parboiled rice, with its superior taste and cooking qualities, have expanded from 72,000 cwt in 1986/87, to over 800,000 cwt in 1990/91. Boil-in-the-bag types of precooked rices account for some of the precooked market.

Brown Rice

Consumption of brown rice expanded from 375,000 cwt in 1980/81 to 808,000 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 factor explains much of the growth in sales during the 1980's. Consumption of brown rice could grow faster if research is successful in extending its shelf-life without changing the texture or appearance.

Rice Bran

Rice bran is a good source of dietary fiber, with many health benefits. Some rice bran cereals are on the market, but these account for a very small portion of rice cereals.

Most rice bran is used in livestock feed rather than for human use, because the removal of the bran layer from the grain causes the oil in the bran to turn rancid very quickly. Rice bran can be stabilized to prevent rancidity by commercially heating the bran in an extrusion cooker.

Some recent studies have shown that rice bran oil, which is found in rice bran, can lower cholesterol in humans. Rice bran oil may be able to be used in place of vegetable oils, but U.S. supplies are small and most is imported from Japan. This market could expand significantly in the future if evidence relating lower cholesterol with consumption of rice oil is substantiated.

Riceland Foods, Inc., headquartered in Stuttgart, Arkansas, recently joined with two Japanese firms to extract, refine, and market rice bran oil in the United States. The new facilities to extract and process oil are scheduled to begin operations during the summer of 1994.

Rice bran oil has been viewed as a superior oil in Japan for many

years, due to its taste and stability. It is used in Japan in rice cookies, potato chips, and in household cooking oil.

Aromatic

Aromatic rices produced domestically remain a very small portion of total specialty rice consumption, accounting for under 100,000 cwt in 1990/91. These sell at prices 2 to 3 times higher than regular milled white rice. However, use of domestic aromatic rice has grown much faster than total rice—virtually doubling from 1988/89 to 1990/91. Many industry participants believe this product category has continued to expand.

And, if current efforts by U.S. researchers are successful in developing domestic aromatic varieties capable of competing with imported aromatic rice, this product category could expand substantially.

About 90 percent of imported specialty rices is jasmine, and the remainder is mostly basmati. Imported jasmine rices are mostly purchased by recent immigrants from Asia. Sales of these rices have risen each year since 1980/81, and will continue expanding as this ethnic group grows. Most jasmine rices are imported from Thailand; and most basmati rice comes from Pakistan and India.

Processed Food Use Shows Fastest Growth

Processed food is the fastest growing market for U.S. rice. From 1980/81 to 1990/91, this use of rice expanded from 4.5 million cwt to 12.2 million cwt. Processed foods' share of U.S. rice consumption has grown from about 14 percent in 1980/81 to nearly 22 percent in 1990/91.

Package mixes and pet foods have been the fastest growing processed markets for rice in the 1990's. These two products together ex-

Table 1

Package Mixes and Pet Foods Are the Fastest Growing Processed Rice Products

Market year	Cereal	Soup	Baby food	Package mixes	Pet food	Rice cakes	Candy	Frozen dinners	Total ¹
1,000 cwt									
1971/72	2,102	646	141	421	-	-	-	-	3,455
1972/73	2,372	367	150	210	-	-	-	-	3,174
1973/74	2,789	103	117	151	-	-	-	-	3,414
1974/75	1,837	210	124	227	-	-	-	-	2,507
1975/76	1,921	106	145	331	-	-	-	-	2,849
1978/79	2,090	157	157	1,096	-	-	-	-	3,717
1980/81	2,588	147	133	1,366	-	-	-	-	4,491
1982/83	2,503	176	152	221	-	-	-	-	3,342
1984/85	3,577	241	316	567	-	-	-	-	5,438
1986/87	4,800	76	233	1,505	426	288	147	61	7,630
1988/89	3,937	119	172	1,705	1,338	707	220	89	8,621
1990/91	4,415	117	445	3,172	2,065	411	105	240	12,194

Note: - Product not included in survey questionnaire. ¹Includes rice not included in any specific category.

panded over 2 million cwt between 1988/89 and 1990/91, accounting for the bulk of the nearly 3-million-cwt growth in food use during that time. Use in baby food and frozen dinners also experienced strong growth, but the volume expansion was less due to their smaller amounts.

Cereal

Cereal, the major processed product for rice, accounted for over 35 percent of all rice used in processed food in 1990/91. Medium- and short-grain rice account for most of the rice used in cereal. Rice cereals are mainly the ready-to-eat type, including rice flakes, puffed rice, shredded-rice, and several multigrain cereals.

Although almost stagnant during the late 1960's and 1970's, rice use in cereal expanded rapidly through the middle of the 1980's, as many new cereal products with rice were introduced and as consumption of traditional rice cereals expanded. Cereal accounted for the bulk of the growth in processed food use of rice during that time. From 1986/87 to 1990/91, however, rice use in cereal has averaged 4.5 million cwt a year.

Packaged Mixes

Use in packaged mixes, sometimes called flavored rice mixes, has continued to expand since the early 1980's, growing from under 400,000 cwt in 1984/85 to almost 3.2 million cwt by the early 1990's. Variety, ease in cooking, desirable taste, and ability to quickly add new flavors to product lines have contributed to growth. Almost all rice used in package mixes is high-quality, southern long-grain. In addition to regular milled white rice, packaged mixes also use small amounts of brown rice, fried rice, and parboiled rice.

Pet Food

Use of rice in pet foods (mostly for dogs) jumped from 426,000 cwt in 1986/87 to over 2 million cwt in 1990/91. Many industry participants believe this market for rice has continued to expand.

Pet foods containing rice typically command premium prices. Rice is more expensive than other grains, and it is used in pet foods for desirable quality attributes. Pet food uses mostly broken rice, a by-product of milling, which currently sells at around half the price of

head rice. Pet foods also use small amounts of rice flour.

Baby Food

A traditional processed food use of rice, baby foods, began to significantly expand in the early 1990's after two decades of stagnant sales. In 1990/91, baby foods used around 445,000 cwt of rice—mostly rice flour—a record high, more than twice the amount 2 years earlier. Baby foods are the largest user of rice flour. Rice-based baby foods are an important substitute for children who are allergic to wheat.

Rice Cakes

The amount of rice used in rice cakes climbed from 288,000 cwt in 1986/87 to about 411,000 cwt in 1990/91. First introduced to U.S. consumers in the mid-1980's, rice cakes are a nutritious snack and are low in calories, cholesterol, and fat.

Numerous efforts to add flavored lines—such as apple cinnamon, "nacho-cheese," and sesame—and improve eating quality have kept this item an important component of processed food use. However, the inclusion of non-rice

items in rice cakes has slowed the growth of rice use in rice cakes even as total rice cake sales have grown.

Frozen Entrees

Use of rice in frozen dinners has also grown since the late 1980's, but these products use substantially less rice than do package mixes and pet foods. Frozen dinners used over 240,000 cwt of rice in 1990/91, almost exclusively high-quality southern long grain. This compares with about 90,000 cwt in 1988/89.

Soup and Candy

Soups used 117,000 cwt of southern long-grain rice in 1990/91, about the same as in 1988/89. Many soups use parboiled rice for superior cooking qualities and longevity in cans. Use of rice in candy remained around 105,000 cwt in 1990/91, and has shown no growth in the 1990's. Some other minor outlets for rice include rice pudding, and certain confectionery uses.

Brewers' Use Remains Flat

The fastest and only growing market for domestic rice from the mid-1960's through the mid-1970's was for brewing. Beer producers historically used mostly broken rice. However, recent upgrades in acceptable standards for rice used in beer have shifted much of the demand away from brewers' rice to sorted second heads and whole grain rice.

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. Stagnant total sales of beer, increasing popularity of light beers, and use of rice in premium beers whose sales have been slowing are reasons behind the stagnation.

During the 1980's, brewers' use of rice rose 35 percent, the slowest growth rate of the three major categories of rice use. And, brewers' use of rice has actually dropped slightly since 1988/89. Its share of

domestic rice consumption dropped from 25 percent in 1980/81 to under 20 percent in 1990/91.

East and West Coasts Are Biggest Markets for Rice

State and regional data provide a profile of direct food use shipments of rice, about 59 percent of total shipments (such data do not exist for processed or brewers' uses).

In the mid-1950's, New York, Louisiana, and California together accounted for over 38 percent of direct food use of rice in the United States. Consumption of rice has since spread somewhat across the United States. In 1990/91, almost 82 percent of all direct food use of rice occurred in four regions which border either the Atlantic, Pacific, or Gulf coasts (fig. 3). These regions have large, ethnically diverse populations and contain large urban centers.

Per capita consumption of rice varies greatly, among regions and States within regions. The Pacific (California, Washington, Oregon, Alaska, and Hawaii) had the highest per capita direct food use in most years from the late 1960's through 1988/89. Per capita direct food use was 17.2 pounds in 1990/91, up from 16.7 in 1988/89.

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—over 50 pounds in 1990/91.

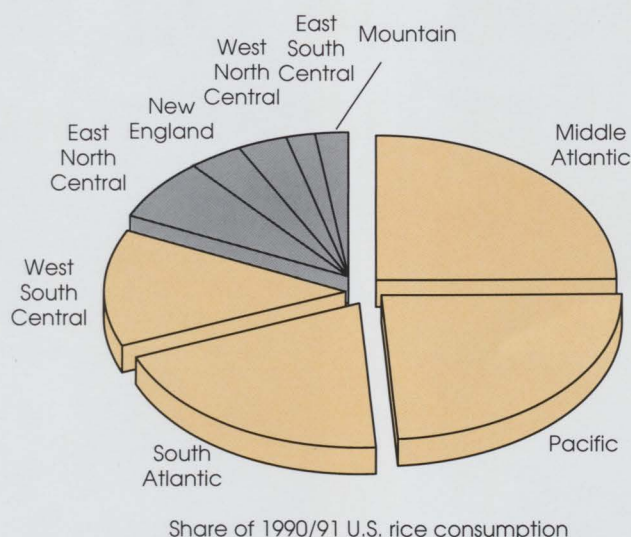
The Middle Atlantic (New York, New Jersey, and Pennsylvania) had the highest per capita use, at 18.8 pounds, up from almost 17 pounds 2 years earlier. This region's large urban centers, with ethnically diverse populations and internationally oriented restaurants, accounted for much of the growth in rice consumption. In



During the 1970's, total U.S. rice consumption (including imports, which were minute during that period) grew 27 percent. But in the 1980's, consumption rose 76 percent to nearly 22 pounds per capita in 1991.

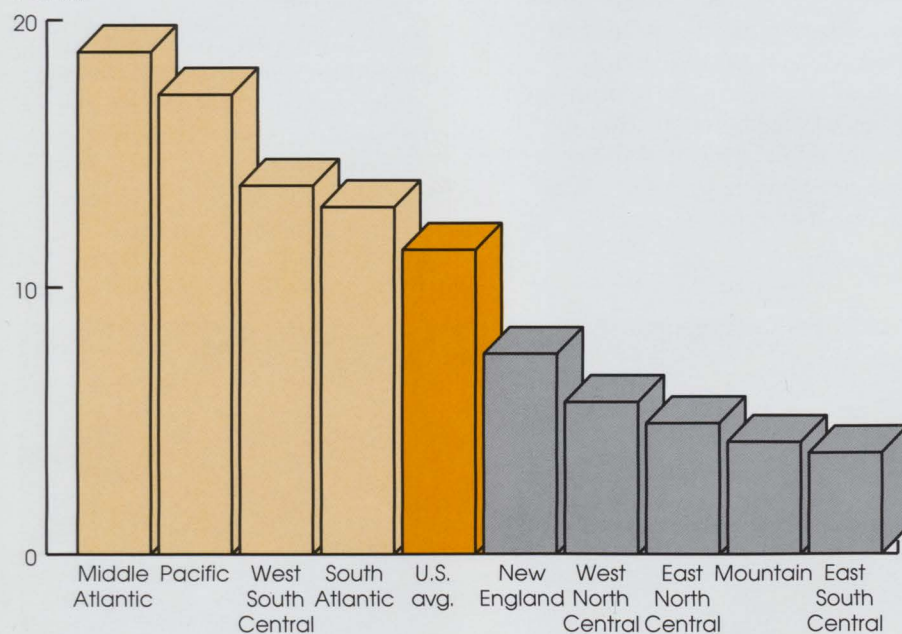
Figure 3

Most Rice Is Consumed Along the Coasts...



...And, These Regions Have the Highest Per Capita Consumption

Per capita direct food use, 1990/91
Pounds



New York and New Jersey, direct food use exceeded 23 pounds a person.

Although the West South Central (Louisiana, Texas, Arkansas, and Oklahoma) consumed the most direct food use rice per person from 1955/56 through the 1960's, per capita use in this region

was 13.8 pounds in 1990/91, third among the regions. In 1956/57, Louisiana had the highest per capita direct food use of rice in the Nation at over 35 pounds—compared with the national average of about 5 pounds.

Greater consumption 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 in the West South Central region as along the Atlantic and Pacific coasts.

The South Atlantic (Maryland, Delaware, Virginia, West Virginia, District of Columbia, North Carolina, South Carolina, Georgia, and Florida), with a per capita direct food use of 13 pounds, ranked fourth. South Carolina, District of Columbia, Florida, and North Carolina all had per capita direct food use of rice well above the national average of 11.4 pounds. Per capita consumption of rice in West Virginia was extremely low compared with the rest of the Nation.

Per capita rice consumption in the South Atlantic was essentially flat during the 1970's, and growth was modest even through the early 1980's. But the greater recent migration of Asian-Americans and Hispanic-Americans into this region—along with emphasis on health, convenience, and tastiness; a large African-American population; and consumer willingness to try new products—combine to explain growth of rice sales in the South Atlantic as well as nationwide.

Per capita direct food consumption of rice in the other five census regions was well below the national average. New England (Massachusetts, Vermont, Rhode Island, Maine, and New Hampshire), at 7.5 pounds, was the highest among the remaining regions. However, Massachusetts' per capita food use of over 13 pounds was substantially higher than in the region as a whole. In addition, some of the reported rice 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. ■