

California Rice 101



HISTORY | TYPES | SUSTAINABILITY | COOKING METHODS | RECIPES



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CHAPTER 1

history of rice



BLACK-CROWNED NIGHT HERON | *Nycticorax nycticorax*

The Black-crowned Night Heron is a stocky, short-necked, medium-sized wading bird that nests colonially in densely vegetated cattail and bulrush marshes. Found throughout the world, it is common in the rice-growing region of the Central Valley.



The California rice industry began commercial production nearly a century ago. From its humble beginnings, the industry has grown to become a major source of jobs and revenue for many Sacramento Valley communities, providing locally-grown, nutritious, affordable food in addition to a host of environmental benefits.

History

California rice farming is relatively new by world standards, yet its reputation for

a consistent supply of high quality grain makes it ideal for today's menus. From the first commercial plantings a century ago, the state's 2,500 family rice farms and mills now produce enough grain for billions of meals to customers at home and abroad. This fills an important niche, considering the prominent role rice plays in feeding the world.

With origins tracing back to Southeast Asia, rice has been cultivated for more than 7,000 years. The earliest writings about rice plantings were found in a decree authored by a Chinese emperor around 2,500 B.C. However, some historical experts now believe that cultivation began in India and spread westward to China.

In comparison, the U.S. began exploring rice production in the early 17th century in Virginia. However, superior varieties from Madagascar were introduced in 1694 in South Carolina. Once rice production became established, it spread to other surrounding southern states and eventually to California in the early 20th century.

California Rice History

In 1848, the discovery of gold in California created high demand for food and agricultural items to support the large influx of immigrants from all over the world. The largest groups were Chinese workers hired by the mines and the railroad. The diet of this group spurred interest in growing rice rather than importing it from China and Japan.

Rice has been cultivated for more than 7,000 years.

Although, the Gold Rush lured many to pursue the possibility of striking it rich, many of these immigrants did not succeed. As a result, some miners turned to their previous profession, farming. At the same time, farming was heavily promoted by the Department of Agriculture to address the demand for food in California, which eventually led to exploration of rice production. Many contributions on the development of rice can be traced back to farmers of European and Asian descent.



The **California Gold Rush** dashed many get-rich-quick dreams, but there was a silver lining. Farmers who failed in their quest to find a fortune in gold soon learned that there were opportunities to make a living doing what they did back home — **growing crops to feed a growing population.**

California farmers specialize in short and medium grain Japonica type rice, which have sticky, moist characteristics that are ideal for many cuisines, including Asian and Mediterranean.

According to the book “Rice in California,” rice experimentation in the state began as early as 1870 and, after years of failures to grow long grain rice, USDA soil specialist W.W. Mackie discovered that a medium grain rice from Japan called Kiushu could be successfully grown.

After various trials in the state, including failed attempts in Los Angeles and Sonoma counties, Mr. Mackie finally succeeded in growing rice in 1908 at the Belfour-Guthrie Ranch in the Sacramento Valley community of Biggs. These trials revealed that Japanese

varieties were better suited to the climate and soil.

By 1912, an industry was born due to the persistence of agricultural researchers and area growers who saw potential in developing this crop.

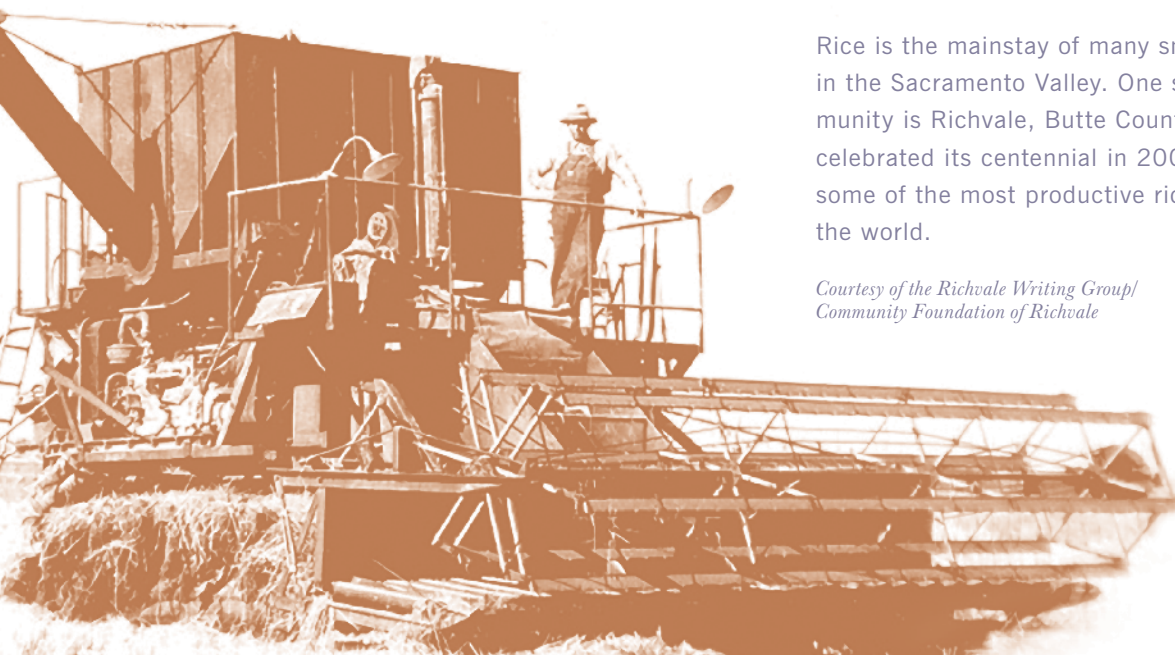
To further this progress, the California Rice Experiment Station was established in Biggs in 1912. Since its inception, this farmer-funded facility has made countless contributions to rice improvement research, including maximizing yields and water use efficiency, as well as seed production.

Today, rice flourishes in the Sacramento Valley and a small portion of the San Joaquin Valley providing an annual economic impact of more than one billion dollars to the California economy, supporting local communities and wildlife habitat.

California farmers specialize in short and medium grain Japonica type rice, which have sticky, moist characteristics that are ideal for many cuisines, including Asian and Mediterranean.

Rice is the mainstay of many small towns in the Sacramento Valley. One such community is Richvale, Butte County, which celebrated its centennial in 2009 and has some of the most productive rice fields in the world.

*Courtesy of the Richvale Writing Group/
Community Foundation of Richvale*



World Rice Today

Rice production is one of the most important economic activities in the world, and is well represented in many international cuisines. According to the U.S. Department of Agriculture, “World rice production is projected at a record 434.3 million tons (milled basis) in 2008/09, up 1 percent from a year ago, a result of record planting.”

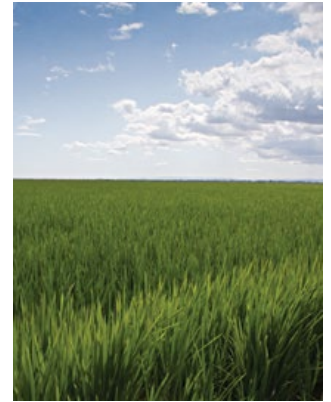
WORLD RICE STATISTICS	
Milled Basis — FY 2008/09	
	METRIC TONS
World	434.3
US	9.2

TOP FIVE WORLD RICE PRODUCERS	
Milled Basis — FY 2008/09	
	METRIC TONS
China	130.9
India	97.5
Indonesia	36.3
Bangladesh	29.6
Vietnam	23.7

Source: *Rice Situation & Outlook Yearbook, February 2009, Economic Research Service, USDA, pp. 17–20*

California Exports

Although California rice is widely known around the world, about 55% of rice grown in the state remains in the U.S. and is sold for use as table rice (retail and food service), frozen and ready-to-eat meals, cereal, beer and sake production, and pet food. Top California rice export markets include Japan, South Korea, Taiwan, and the Middle East. Premium California rice is found in every piece of sushi made in America.



The first rice variety successfully grown in California was the **Kiushu variety, a Japanese seed**. In fact, all rice currently grown in the U.S. can trace its ancestry back to introductions from Japan and China.



The California rice industry proudly supports the **Wakamatsu Tea and Silk Colony Project**, an effort to acquire and preserve the first **Japanese settlement in North America**. Rice was one of the crops grown at this location, very near where **James Marshall discovered gold**.

Domestic Use of U.S. Rice

United States rice consumption was 28.3 pounds per capita in 2007/08. Domestic usage includes direct food use (56 percent), processed food use (18 percent), beer & sake (12.2 percent), pet food (12 percent) and other industrial uses (1 percent). Although small by comparison to many Asian countries, consumption has increased significantly, largely due to a general interest in rice for improving diet and health as well as marked increases in Asian and Hispanic populations with a preference for rice.

U.S. DOMESTIC FOOD USE	
Fiscal Year 2007/08	
Direct Food Use	56.0 %
Processed Food Use	18.0 %
Beer & Sake	12.2 %
Pet Food	12.0 %
Other Industrial Uses	1.0 %

Source: USA Rice Federation, U.S. Rice Domestic Usage Report, FY 2006/07

California rice is a valuable ingredient in a host of processed foods, including **breakfast cereals** and **snack bars**.



United States rice production in 2009 is projected at about 10 million tons, accounting for less than 2 percent of total world production. However, exports are projected to be 4.4 million tons, accounting for 11 percent of world trade in 2009/10.

Rice in the U.S. is produced in three principal areas: the Grand Prairie and Mississippi River Delta of Arkansas, Louisiana, Mississippi, and Missouri; the Gulf Coast of Florida, Louisiana, and Texas; and the Sacramento Valley of California.

Photos courtesy of PGP, International.

Rice Production in California

California rice is grown on about 525,000 acres in the Sacramento Valley and a small area in the San Joaquin Valley. Currently, there are 17 public varieties that are grown in California — the most successful of these are Calrose, Koshihikari, and Akitakomachi. In addition, farmers in the state also grow various specialty varieties that include Arborio, Jasmine, Basmati and colored-bran rice like black and mahogany japonicas.

California rice fields are among the most productive in the world, with average yields of more than four tons of rice per acre. Farmers in the Golden State typically produce more than four billion pounds of rice each year.

U.S. RICE PRODUCTION (2008 CROP)

State	Area Harvested (1,000 Acres)	Yield (Pounds)	Production (1,000 Cwt)
Arkansas	1395	6660	92938
California	517	8320	43030
Louisiana	464	5830	27037
Mississippi	229	6850	15687
Missouri	199	6620	13173
Texas	172	6900	11868
United States	2976	6863.3	203733

* US average

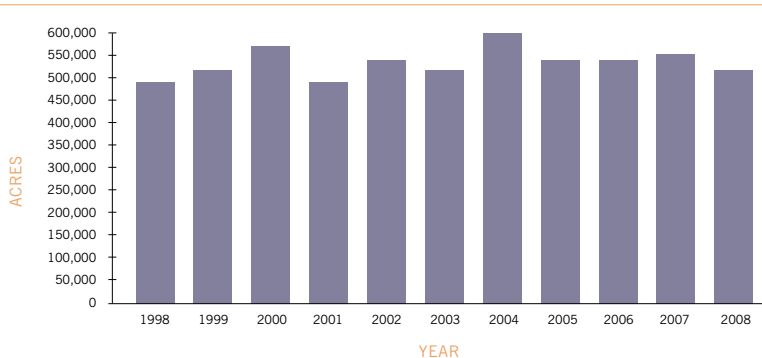
** Cwt is the standard industry measurement for “hundredweight,” or 100 lbs.
Source: USDA Production 2008 Annual Summary, January 2009



The **Sacramento Valley** is the heart of California’s rice industry, much like the Napa Valley is to premium wine and wine grapes. **Ninety-five percent** of the state’s crop is grown within 100 miles of the State Capitol.

CALIFORNIA RICE AVERAGE HARVESTED

Fiscal Years 1998 – 2008





Courtesy of Quench, Inc.

Every piece of sushi made in America comes from **California rice**. The California rice industry honors this culinary art form through SushiMasters, a competition among chefs to determine the state's **SushiMaster**.

For more information, go to: www.sushimasters.com

CALIFORNIA RICE PRODUCTION BY TYPE

Fiscal Years 1998 – 2008



* Sources: Appendix Table 9 Rice Situation & Outlook Report, February 2009, Economic Research Service, USDA.

** California Field Crop Review, Vol. 30 No. 1, January 23, 2009, California Agricultural Statistics Service.

*** Source: United States Department of Agriculture, National Agriculture Statistics Service, Quick Stats by State

U.S. RICE PRODUCTION BY TYPE

Fiscal Years 1998 – 2008



* Sources: Appendix Table 8 Rice Situation & Outlook Yearbook, February 2009, Economic Research Service, USDA.

** California Field Crop Review, Vol. 30 No. 1, January 23, 2009, California Agricultural Statistics Service.

Planting

In March, farmers begin to prepare their fields for planting. First, fields are carefully leveled with precision, laser-guided grading equipment. Flat fields allow rice farmers to conserve water. Fertilizer is then added, and shallow furrows are rolled into the field. By April, the fields are ready to be planted.

Irrigation

Water is run into the fields to a depth of only five inches. Consistent water depth has been shown to improve the rice plants ability to compete against weeds for nutrients and sunlight, reducing the need for herbicides. Rice seed is then soaked and loaded into planes. Flying at 100 miles per hour, planes plant the fields from the air. The heavy seeds sink into the furrows and begin to grow.

The rice seedlings are now ready to begin their four to five month journey to maturity. Early in the growing cycle, one to two applications of herbicides are applied to control weeds. If necessary, farmers may also treat the fields for rice water weevil and other insects. Early application with few crop protection materials ensures pure rice at harvest.

Growth

The rice plant grows rapidly, ultimately reaching a height of three feet. During this time, farmers are careful to maintain a consistent water depth of the same five inches. By late summer, the grain begins to appear in long panicles on the top of the plant. By September, the grain heads are mature and ready to be harvested. On average, each acre will yield more than 8,000 pounds of rice.

The **California rice industry** for decades has been a leader in **water quality** efforts, with comprehensive monitoring programs that are ideal examples for all of agriculture.





California rice is not only a popular choice domestically, it's also much in demand thousands of miles away. **Japan** is the number one overseas destination for California rice. Other key markets include **South Korea, Taiwan and Turkey**.

Harvest

Harvest takes place in the early fall. Before rice harvest can begin, the fields must be drained. Once the fields are dry, state-of-the-art harvesters enter the fields to collect the grain. Because quality is so important, these harvesters are designed to both gently and rapidly bring the grain in from the fields. Specialized tractors called bankout wagons come alongside, receiving the rice and delivering it to waiting trailers so the harvesters can continue without having to stop to unload.

Drying & Storage

Once harvested, rice is carefully dried to an ideal moisture level of 13 to 14 percent and stored until the customer places an order. At the mill, the hull is first removed, leaving brown rice. White rice is the result of gently removing bran layers to leave just the inner, pearly grain. Rice mills in California are among the most advanced in the world, with specialized equipment to mill, sort and package rice to meet the highest quality standards.

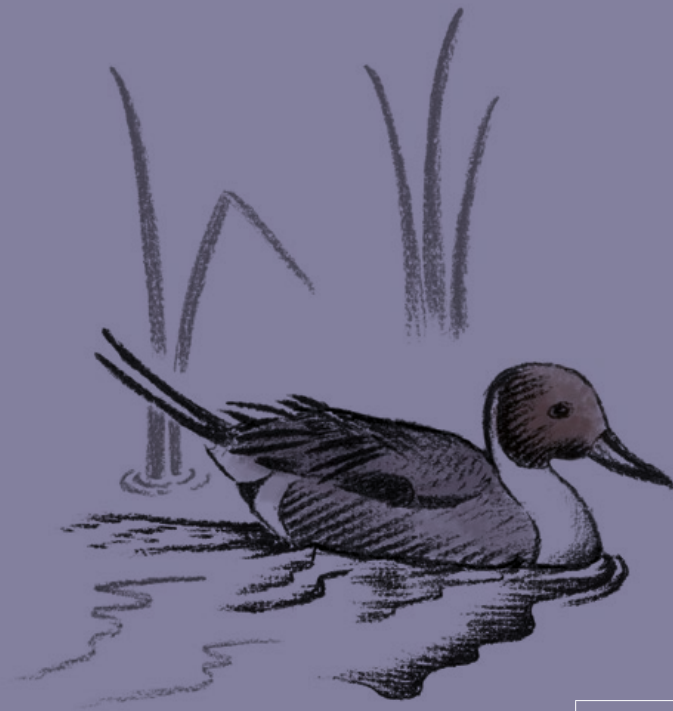
Milling in California

Quality is key in processing California rice due to high industry standards and customer demands. Rice mills in California are among the most sophisticated in the world. In addition, customer preferences have led to the development of co-products that are popular in Asian markets both domestically and overseas.



CHAPTER 2

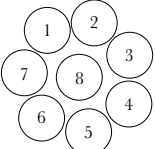
types *of* rice



NORTHERN PINTAIL | *Anas acuta*

The Northern Pintail Duck has a long white neck and chocolate brown color. It is among the most prolific waterfowl species in the Pacific Flyway, and often finds winter food and lodging in Central Valley rice fields.



	1 – CA Jasmine	5 – Black Japonica
	2 – Short Grain	6 – CA Arborio
	3 – Calmochi	7 – CA Basmati
	4 – Red Rice	8 – Medium Grain

Types

Rice is known botanically as *Oryza sativa* and is considered a grass, as are barley, oats, rye and wheat. Unlike these grains, rice is non-gluten grain that can be beneficial to consumers with food allergies.

Primary rice types are the indica and japonica varieties. Indica rices are characterized by fluffy, separate kernels when cooked and are typically long grain rices that grow near the equator. The indica rice kernel is four to five times longer than it is wide and has higher levels of amylose, the inner portion of a starch granule, that makes long grain rice fluffy and separate when cooked. Japonica rices, which fare well in temperate and mountainous regions, usually are the medium and short grain varieties. The sticky and moist characteristics of japonica rices make them ideal for Mediterranean and Asian cuisines. The medium grain kernel is two to three times longer than it is wide and has a lower amylose level that provides a more sticky consistency when prepared. Japonica varieties account for about 95 percent of the rice grown in California.

Other unique rices grown in California include mochi, or sweet rice, which is a glutinous rice used in traditional Japanese rice cakes, desserts and puddings. Aromatic rice can be distinguished by its unique colors, textures, and fragrances. Brown rice is known for its high nutrient content, is a bit chewier and has a longer cooking time. Haiga is a fully milled rice kernel that retains its germ where many of the kernel's natural nutrients reside.

Degrees of Milling in California

Paddy rice, also known as rough rice, is natural, unprocessed rice that includes an indigestible outer hull. Once paddy rice is taken to the mill, initial processing produces whole grain (Brown) rice. A unique feature of California rice is that a majority of the grain is marketed to the Japanese community in the U.S., and many of our distributors clients enjoy Haiga rice. Haiga involves a milling process developed in Japan that is available at many California mills and is described as rice milled almost to white, but retaining its own germ, maintaining many of the kernel's natural nutrients. The last stage of milling produces white rice. This is the rice endosperm once the hull, bran and germ are removed.



Japonica rices consist of **medium and short grain varieties**, typically grown in temperate and mountainous regions. Their sticky and moist characteristics make them ideal for **Mediterranean and Asian dishes**. Both short and medium varieties are shorter in length and have a lower amylose level that provides its sticky texture when prepared.



panicles of rice



paddy rice,
harvested and dried



brown rice



white rice

Milling Steps

- 1 | Paddy rice (rough rice) is inspected prior to cleaning and milling for quality standards. The inspection criteria include factors for moisture, damaged kernels, other varieties, and insects. If the paddy fails to meet these quality standards, it is rejected.
- 2 | The outside layer (hull or husk) is inedible and is removed. All rice that is use for human food has the hull removed by machines called “shellers.”

The remaining grain is called “whole grain rice,” the most common type being “brown rice,” although black and red rice, such as Black and Mahogany Japonica, are also whole grain rices. It contains the endosperm, germ and bran. The color of the bran determines the actual color of the whole grain rice, such as brown, black or red. Any rice with bran and germ intact is whole grain rice.
- 3 | Haiga rice is whole grain brown rice partially milled to remove as much of the bran layer as possible while keeping the germ intact.

To turn whole grain brown rice into white rice (milled), the grains are passed through a series of machines that rub the grains together with pressure to remove the bran and germ.
- 4 | Brown and white rice are both sent through grading equipment to remove any broken kernels.
- 5 | Brown and white rice can be sent through optical color sorting machines that use digital cameras to inspect the individual kernels for defects. Defects can be off-color kernels or small spots for damage. The defects are then removed by air jets, a feature contained within color-sorting machines.
- 6 | In the United States, some white rice is enriched by coating the surface with a thin layer of nutrients, including thiamin, niacin, iron and folic acid. To preserve the nutrients in enriched rice, it is recommended that it should not be rinsed before or after cooking.

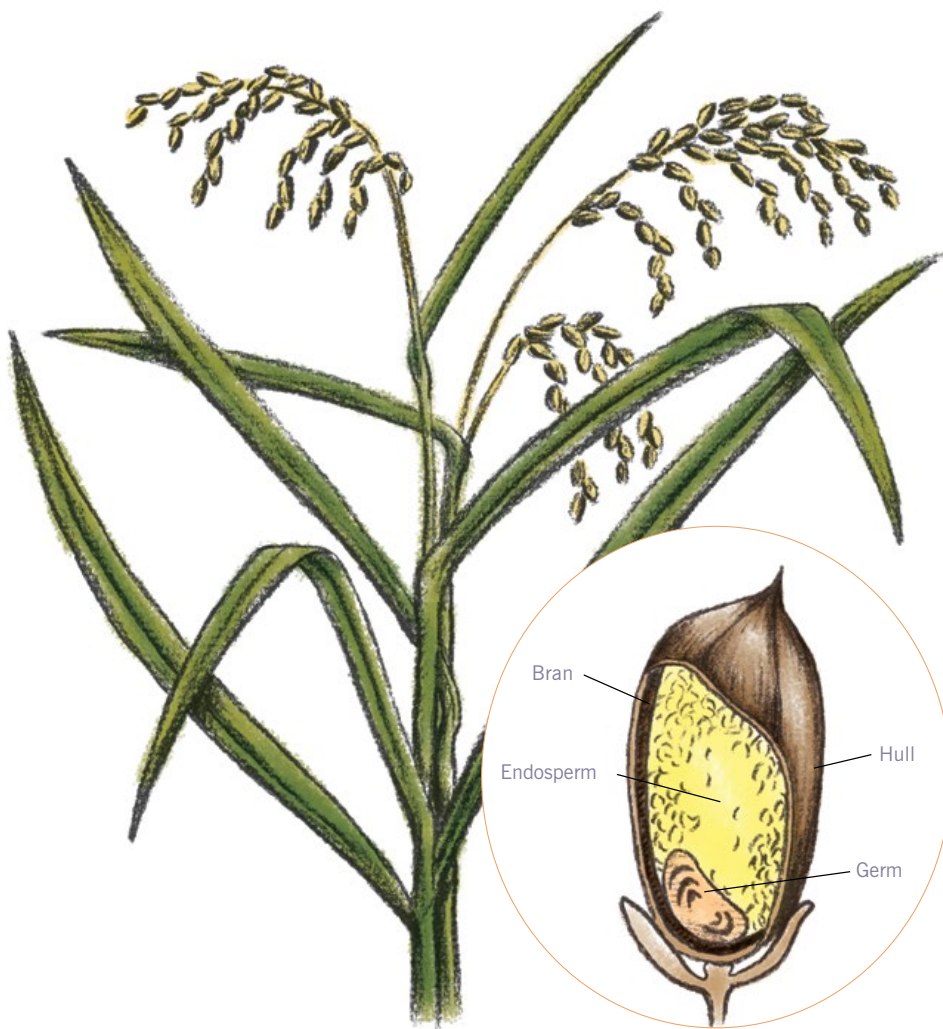
Key Characteristics of a Rice Kernel

At harvest, rice is called paddy or rough rice, characterized by its outer shell called the hull. Once this indigestible shell is removed, it can be consumed as brown rice. At this point, the rice kernel is surrounded by an outer layer of fiber called bran. Based on milling, its color can vary from brown to tan. This is attributed to antioxidant-rich pigments in rice. The endosperm is the interior part of the rice and holds most of rice's protein, starch, minerals, and vitamins. And lastly, the germ is considered the embryo of the rice kernel, if allowed to germinate this will sprout into a new plant. The embryo also contains most of the oil in a rice kernel.

The endosperm is the interior part of the rice and holds most of rice's protein, starch, minerals and vitamins.



Freshly harvested rice is at the paddy or rough rice stage, with the rice kernel surrounded by an **indigestible hull**. When the outer hull is removed, rice becomes whole grain or **brown rice**. Once its bran layer and germ are polished off, it is considered white milled rice.





“New crop” rice is awaited with great anticipation each fall. Every year at harvest, “new crop” rice arrives with great fanfare at Asian-food retailers around the state and U.S. In the Asian culture, rice is thought of as a living grain and fresh rice off the field is highly coveted.

Enrichment

In some instances, white rice is enriched by coating the surface with a thin layer of nutrients. This process is carried out on some long grain rice, and is not a practice used on California medium or short grain rice.

Rinse-Free Rice (Musenmai)

Musenmai is an innovative milling process developed in Japan and is now available in select mills in the U.S. This process lets you skip the extra step of rinsing and does not affect flavor or consistency.

Haiga

This process is the answer to customers who prefer the taste of white rice but would like a nutritional value similar to brown rice. This new white rice product retains the rice germ and is now available in medium and short grain.

“New Crop” Rice

Newly harvested is known as “new crop” rice. This term was coined by the Asian distributors who own key California rice brands marketed primarily to Asian communities all over the U.S. “New crop” rice is highly prized by Asian consumers. Typically, when “new crop” arrives on the shelves starting the end of September, it can command a higher price versus rice that was harvested in the previous year.

Today, many California-inspired dishes are attributed to the state’s diverse history that originated from Mediterranean and Asian regions.

Using California Rice in Regional Cuisine

One of California’s best assets has been diversity. From early days under the rule of Spain and Mexico to the Gold Rush that resulted in statehood, California’s heritage grew. The lure of gold was a contributing factor that spawned an influx of immigrants and almost instant population growth that was rich with many different languages, thoughts, and foods.

Along the way, California rice farmers learned how to grow rice that flourished in the state’s Mediterranean climate and developed various medium and short grain varieties, each with its own unique characteristics and culinary applications that compliment current world cuisine.

Here are few of the major varieties that are produced in the state along with recommendations on usage.

MEDIUM GRAIN			
	Description	Best Uses	Additional Facts
Calrose	<ul style="list-style-type: none"> ■ Grains are soft and stick together ■ Calrose absorbs flavors beautifully ■ Holds together well in soups and salads 	<ul style="list-style-type: none"> ■ Mediterranean and Asian cuisine such as paella, risotto, pilafs, and rice bowls or sushi ■ Steam rice can be an excellent side dish to Asian fusion entrée ■ Spanish-style rice dishes ■ Winter soups and summer salads 	<ul style="list-style-type: none"> ■ More than 85 percent of all California rice is a Calrose variety ■ Most recognized variety in the U.S. and abroad
Premium Medium Grain	<ul style="list-style-type: none"> ■ Grains remain glossy and upright after cooking ■ This variety is sweeter in taste, softer and stickier ■ Retains moist texture for longer periods of time ■ Resembles qualities of a short grain at an economical price 	<ul style="list-style-type: none"> ■ Preferred sushi rice, offers presence and hold, in both rolls and nigiri ■ Great for Asian fusion entrées that require a flavorful bowl of steamed rice ■ Excellent for every day use 	<ul style="list-style-type: none"> ■ Packaged as “New Variety” or labeled as premium medium grain ■ Most popular variety used in sushi in the U.S.

SHORT GRAIN			
	Description	Best Uses	Additional Facts
Koshihikari	<ul style="list-style-type: none"> ■ Grains have a sweet aroma and are firm, moist and sticky ■ Known to hold its firmness and flavor over periods of time 	<ul style="list-style-type: none"> ■ Sushi and traditional Japanese cuisine ■ Due to higher starch and creamy qualities, this rice can be used for risotto ■ Great just steamed or as an accompaniment to rich flavored dishes ■ Great for desserts like rice pudding 	<ul style="list-style-type: none"> ■ About 10 percent of rice grown in California consists of short grain varieties ■ Most recognized variety in Japan. ■ Preferred by sushi connoisseurs
Akitakomachi	<ul style="list-style-type: none"> ■ Grains have a sweet aroma and are firm, moist, and sticky ■ Slightly less sticky than “Koshi” ■ Has a neutral and faint nutty taste 	<ul style="list-style-type: none"> ■ Sushi and traditional Japanese cuisine ■ Great when topped with highly spiced dishes like a curry or as flavored rice dish ■ Desserts such as rice puddings 	<ul style="list-style-type: none"> ■ Second most recognized variety in Japan

California's rich diversity has helped shape cuisine trends throughout the nation and has helped increase the use of rice in today's menus.



SPECIALTY VARIETIES			
	Description	Best Uses	Additional Facts
Arborio Medium Grain	<ul style="list-style-type: none"> Grains have a creamy and chewy like texture Similar to pasta 	<ul style="list-style-type: none"> Risotto, paella, and pudding 	
Jasmine Long Grain Aromatic	<ul style="list-style-type: none"> Grains emit a perfume-like aroma and its texture is sticky and moist 	<ul style="list-style-type: none"> Side dishes, stir fry, and Asian-inspired desserts 	<ul style="list-style-type: none"> Aromatic rice may alter overall flavor when using in a recipe that calls for more spices like pilafs, salads, or casseroles
Basmati Long Grain Aromatic	<ul style="list-style-type: none"> Grains have a popcorn like aroma and textures are fluffy, separate and dry 	<ul style="list-style-type: none"> Side dishes, pilafs, and salads 	<ul style="list-style-type: none"> Aromatic rice may alter overall flavor when using in a recipe that calls for more spices like pilafs, salads, or casseroles
Black or Mahogany Japonica	<ul style="list-style-type: none"> Grains have a thick bran layer that is black or mahogany in color Sweet, nutty and musky flavor and chewy, moist and crunchy texture 	<ul style="list-style-type: none"> Salads, soups, stuffings, and casseroles 	
Calmochi Short Grain	<ul style="list-style-type: none"> Grains have a sweet flavor and a creamy, soft texture 	<ul style="list-style-type: none"> Preferred for desserts Puddings and Asian-inspired desserts like mochi 	
Red Rice Long Grain	<ul style="list-style-type: none"> Grains are reddish-brown in color and have a nutty, chewy texture 	<ul style="list-style-type: none"> Side dishes, salads, stuffings, and soups 	

Rice as an Ingredient — Rice Co-Products

In the U.S., food manufacturers have used rice to develop products like breakfast and baby cereal, beer, crackers, noodles, frozen foods, soups, on-shelf meals, bread, cookies, thickeners, creamers, health bars, desserts, and pet food.

Rice is an ingredient known to help make foods creamier, crunchier, firmer; and in cases where customers are allergic to wheat and soy, rice is the solution to add gluten-free meals to your menu.

Adding rice as an entrée or accompaniment to a world-inspired main course is a great start. However, you can also add rice to your recipes by substituting wheat flour with rice flour for frying or as a thickener in creamy-styled soups. In using rice flour you will notice a few things, it does not clump like wheat flour, and it will add a smooth mouth-feel in soups unlike cornstarch. Below is a table that highlights the many uses of rice in today's food products and formulations.



Photo courtesy Gekkeikan Sake (USA), Inc.

Domestic sake's **main ingredient** is California rice. Sake making involves **polished rice**, making premium varieties valuable in its production.

Rice Form	Characteristics	Applications
Brown Rice	<ul style="list-style-type: none"> ■ Higher protein content ■ Higher fiber content ■ Higher fat content 	<ul style="list-style-type: none"> ■ Side dishes ■ Health food products ■ Frozen/prepared meals ■ Prepared salads ■ Ethnic dishes ■ Breakfast cereals (hot and ready-to-eat) ■ Extruded snacks, rice cakes ■ Packaged rice mixes
Regular Milled White Rice (medium and short grain)	<ul style="list-style-type: none"> ■ Versatile ■ Neutral taste ■ May lose taste and texture when overcooked 	<ul style="list-style-type: none"> ■ Side dishes ■ Sake ■ Frozen/prepared meals ■ Breakfast cereals (hot and ready-to-eat) ■ Desserts and puddings ■ Snacks and rice cakes ■ Pet food
Precooked Milled Rice (Instant Rice)	<ul style="list-style-type: none"> ■ Minimal prep time 	<ul style="list-style-type: none"> ■ Rapid soup mixes ■ Meals-in-a-cup ■ Side dishes
Precooked IQF Rice (Individually Quick Frozen)	<ul style="list-style-type: none"> ■ Free-flowing ■ Saves on water and energy 	<ul style="list-style-type: none"> ■ Frozen entrées ■ Side dishes ■ Desserts

Rice Form	Characteristics	Applications
Second Heads	<ul style="list-style-type: none"> ■ Broken rice kernels that can be used alone or in combination with whole kernels 	<ul style="list-style-type: none"> ■ Hot and ready-to-eat cereals ■ Rice pudding ■ Meat extenders ■ Fillings, stuffing ■ Crisped rice for confections ■ Production of rice flour ■ Pet foods
Brewers' Rice	<ul style="list-style-type: none"> ■ Smaller sized broken rice kernels, named for their initial use in beer production but are now used as an ingredient for other products 	<ul style="list-style-type: none"> ■ Beer brewing ■ Production of rice flour ■ Pet foods
Rice Meal/Flour	<ul style="list-style-type: none"> ■ May be white or brown ■ Improves viscosity 	<ul style="list-style-type: none"> ■ Baby food ■ Extruded snacks, crackers ■ Breading for fried foods ■ Baked goods ■ Baking mixes ■ Dietetic specialties ■ Soups ■ Multi-grain breads ■ Soups, stews, sauces ■ Binders/extenders for meats and sausage ■ Thickeners for sauces and gravies ■ Carrier for seasonings ■ Dusting and release agent
Stabilized Rice Bran	<ul style="list-style-type: none"> ■ High in protein ■ Efficient source of fiber 	<ul style="list-style-type: none"> ■ Bakery products (including multi-grain breads) ■ Nutritional bars ■ Extruded cereals and snacks
Rice Bran Oil	<ul style="list-style-type: none"> ■ High-quality cooking oil ■ Excellent balance of fatty acid 	<ul style="list-style-type: none"> ■ Cooking oil
Rice Starch	<ul style="list-style-type: none"> ■ Excellent thickening properties ■ Bland flavor ■ Can be hydrolyzed ■ Non-hygroscopic 	<ul style="list-style-type: none"> ■ Thickening sauces/gravies ■ Freeze/thaw applications ■ Fat mimetic ■ Frozen desserts

CHAPTER 3

sustainability *of* rice



GREAT BLUE HERON | *Ardea herodias*

The Great Blue Heron is a large wader with dark blue-gray plumage. It hunts in flooded or dry rice fields, including the Central Valley, where it feeds on voles, frogs, fish, snakes, crayfish and other prey.



California family rice farmers not only produce abundant grain, their care for the environment is evident with exemplary air and water quality programs that provide abundant wildlife habitat.

Sustainability |

When you have California rice on the menu, your customers are enjoying a truly sustainable food.

Our family farmers are committed to improving their natural surroundings, wise use of water and reducing their impacts on the environment, and it shows. Our family rice farms understand that the more they work to enhance their environment, the greater opportunity they have to sustain this century-old farming tradition and the small communities where they live.

Water and air quality practices carried out by California rice farmers are models for the state and nation.

For more than 20 years, California rice farmers have been at the forefront of efforts to improve water quality. Water from our fields is actively monitored to ensure we provide no negative environmental impacts. Over the last three decades we have developed and put in

Our 2,500 family farms understand that the more they work in harmony with their environment, the greater opportunity they have to sustain this century-old industry.

place management practices that ensure that water that flows back to the river for other uses, including drinking water for our urban neighbors, is clean and safe.

California rice farmers' commitment to clean air is another success story. Smoke and soot from burning rice straw have been reduced by approximately 75 percent over the past 15 years. Year after year, this eliminates an estimated 9,700 tons of air pollution from the Sacramento Valley

and substantially contributes to regional clean air goals. The small amount of remaining burning is done for disease control in fields, and happens only under strict management to minimize smoke impacts on neighboring communities.



A haven for wildlife: California rice fields make up 90 percent of the second largest specially designated shorebird habitat area in North America. There you'll find hundreds of thousands of shorebirds, herons, egrets and ibis — all with ever-shrinking choices for habitat.



Wildlife habitat provided by **California ricelands** would cost more than **\$1 billion** to replicate through restoration of wetlands.

Probably the biggest sustainability benefit stems from rice fields contribution to wildlife. Rice fields provide food and shelter for scores of wildlife species. In fact, California ricelands provide habitat to 230 wildlife species, including more than 30 that have been designated as special status by state or federal biologists, indicating their populations have declined to a level of concern. Ricelands provide more than half of the food for seven million wintering waterfowl in the Sacramento Valley. Our cropland is so valuable to wildlife that the Manomet Center for Conservation Sciences designated more than 500,000 acres of Sacramento Valley ricelands as a Shorebird Site of International Significance; the second largest site of its kind in North America.

Rice fields are much more water efficient than many realize. California ricelands consume about the same amount of water as the average urban lawn.

The environmental benefits from California rice also includes the way the crop is grown. Water utilized in rice fields is an important factor in maintaining at least 35,000 acres of California's managed wetlands.

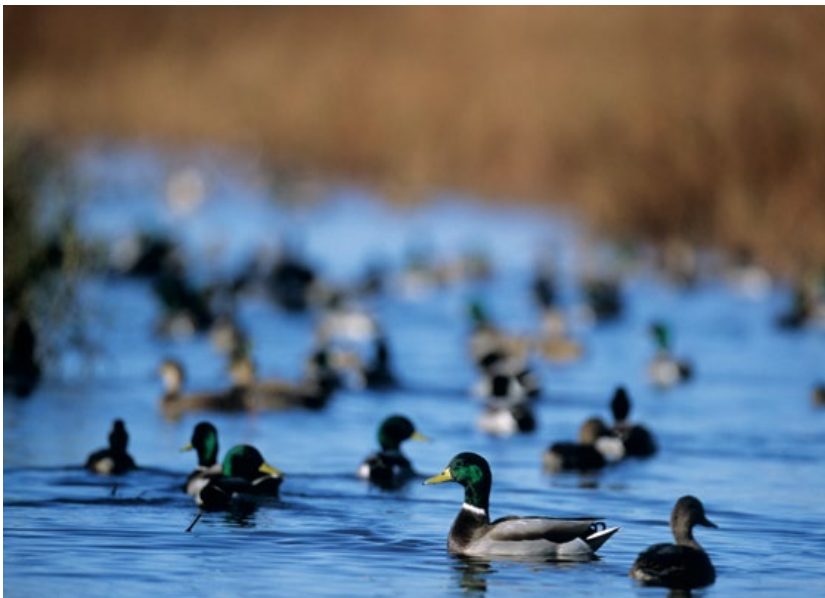
As rice crops have flourished in this region for generations, so have small towns like Colusa, Richvale and Biggs, which rely on this grain as the staple of their economy. All told, California rice provides in excess of \$1.3 billion to the state's economy each year.

All of these benefits are essentially free to all Californians and are a result of maintaining the state's small family rice farms.

Contrary to what it appears at first glance, the average depth of water in a rice field is only five inches.

Another surprising fact of California rice involves water use efficiency. Thanks to improved rice varieties that produce more grain with shorter plants, laser leveling of fields and a shift to growing rice in heavy clay soils, our farms have made continual progress in maximizing how we utilize this precious resource. Contrary to what it appears at first glance, the average depth of water in a rice field is only five inches. As a result of our highly efficient growing methods, ricelands produce more than 11 calories of food value per gallon of water. In comparison, some crops are produced at approximately one percent of this efficiency level. In addition, our farmers have launched a ten-year water use efficiency initiative, as part of our ongoing commitment to environmental stewardship.

What's more, we are looking to the future evaluating our industry's greenhouse gas emissions, looking for ways to be even more water efficient and understanding whether the nutrients we apply to our fields impact water quality.



Clean water stewards: The California rice industry for more than 20 years has been at the forefront of water quality programs. Our farmers operate a program that is a model for all farmers in the state, which helps ensure that water leaving rice fields has no negative environmental impacts.



The **White-faced Ibis** inhabits **freshwater wetlands**, including flooded Sacramento Valley rice fields. This bird was a California species of special concern, but is now off of the list and serves as a **tremendous conservation success story**.

Those involved in **California rice** continue to seek ways to use energy wisely, including **harnessing the sun**. Several family farms, mills, drying and storage facilities **utilize solar panels** to provide energy for their operations.

Those involved in California rice take great pride in producing such a sustainable food. Whether it's an increased use of solar power or growers adopting new, more environmentally-friendly farming practices, this industry stands ready to do its part to make an even more sustainable contribution to the state.

Those involved in California rice take great pride in producing such a sustainable food.

California rice is an original sustainable food. Grown on family farms, we care for the environment providing clean air and water in return for a food that not only is staple for humanity, but also provides food and valuable habitat for millions of waterfowl and shorebirds. All of this is made possible in the small towns and rural communities of Northern California.



CHAPTER 4

cooking *with* rice



AMERICAN AVOCET | *Recurvirostra americana*

The American Avocet is a tall, striking shorebird with black and white plumage augmented in the spring by cinnamon color on the head and neck. They are often found in flooded Sacramento Valley rice fields, foraging on aquatic insects.



This Morikomi Plate earned Chef Tomoharu Nakamura of Sanraku, San Francisco, a gold medal, en route to his Best of Show performance at the 2009 SushiMasters Finals East/West Challenge. Chefs across America value California rice for its high quality and consistent supply.

Cooking

Many consumers' experience with rice has been limited to instant

or parboiled rice offered by leading food manufacturers. However, eating patterns are changing, and increasing diversity has spurred interest in world flavors that utilize Asian rice varieties that flourish in California.

You are about to find out just how easy it is to prepare perfect California rice.

Adding Rice To Your Menu

When you include California rice in your menu, you add an economical ingredient of almost unlimited flexibility. Its cohesive texture and flavor-absorbing qualities make California rice the perfect partner to your creative talents. Rice is gluten-free and essential for consumers with food allergies.

California Rice Cooking Tips

- Carefully measure the amounts of rice and liquid.
- Keep the lid on tightly during cooking to prevent steam from escaping.
- At the end of cooking, remove the lid and test for doneness. If rice is not quite tender and no water remains, add a little more water and cook two to four minutes longer. If rice is fully cooked and liquid remains, drain excess liquid. Place back on low heat for about a minute.
- Be accurate with cooking time. Base time on cooking method.
- For preparing Asian dishes, it is not necessary to salt or butter your rice.

Common mistakes in preparing California rice

Using too much liquid and overcooking are two common mistakes. California rice tastes best when the grains have a little bounce. The goal is clingy and sticky, not mushy. This also applies to brown rice.



Sushi and other Asian cuisines are among the **most popular** uses of **California rice**. However, short and medium grain rice from the Golden State is perfect for a host of other dishes, including risotto, paella, and **Mediterranean dishes**.

Rice to Water Ratios

- 1 cup uncooked white medium/short grain rice to 1 ½ cups of water
- 1 cup of uncooked brown medium/short grain to 2 cups of water

Remember that “new crop” rice has a higher moisture level that will require less water in cooking. This can range in holding back an additional ¼ to ½ cup of water per serving.

Type of Rice	Yield	Servings	Uncooked Rice	Liquid*	Salt (optional)	Butter (optional)
Medium or Short Grain White	1 qt	8	1 ½ cups	2 cups	½ tsp.	1 Tbsp.
	1 gal	32	6 cups	2 ¼ qt	1 Tbsp.	2 Tbsp.
Long Grain White**	1 qt	8	1 ⅔ cups	2 ⅔ cups	½ tsp.	1 Tbsp.
	1 gal	32	5 ½ cups	2 ½ qt	1 Tbsp.	2 Tbsp.
Brown***	1 qt	8	1 ¼ cups	2 ½ cups	½ tsp.	1 Tbsp.
	1 gal	32	5 cups	2 ½ qt	1 Tbsp.	2 Tbsp.

* *Liquid other than water can be used, including chicken stock, beef stock, bouillon, consommé, tomato or vegetable juice (1 part water, 1 part juice) and fruit juices such as orange or apple (1 part water, 1 part juice).*

** *Follow long grain cooking instructions for Jasmine and Basmati rice.*

*** *Follow brown rice cooking instructions for colored rices such as Black and Mahogany Japonica, and Red Rice.*



Thanks to its **distinctive taste and texture**, California **brown rice** is an increasingly popular choice for consumers. Brown rice is a **whole grain**, containing fiber and several beneficial nutrients.

Stockpot Method: Heat all ingredients to boiling; stir. Cover and lower heat to simmer. Cook regular-milled white medium, short or long grain rice for 15 minutes, and brown rice for 40 to 50 minutes.

Oven Method: Using boiling liquid, place ingredients in shallow pan; stir. Cover and bake at 350°F. Bake regular-milled white medium, short or long grain rice for 25 to 30 minutes, and brown rice for 50 to 60 minutes.

Steamer, Steam Jacketed Kettle or Rice Cooker: Follow manufacturers' instructions.

Quick Meals — Stir In Ideas

Steamed California rice keeps well and can serve as the foundation of a host of economical and quick meals. The possibilities are endless. You can develop hot cereals, fried rice, wraps, rice pudding, soups, stuffed vegetables, salads, and more. The next time you have leftover rice think about ways you reinvent steamed rice in the next day's menu.

Here are a few stir-in ideas for transforming cooked California rice into a mouth-watering side dish:

- Toasted sesame seeds, sesame oil and thinly sliced onions
- Chanterelle mushrooms, dried apricots, and toasted almonds
- Garlic sautéed in butter, peas, and Parmesan cheese
- Sautéed mushrooms, snow peas, and sliced water chestnuts
- Marinated artichoke hearts and grated Parmesan cheese



Nutrition

Rice is a staple food for consumers diagnosed with Celiac disease that are unable to eat wheat, rye and barley products. More restaurants are offering options for customers with food allergies, while gluten-free items, such as California rice, are also being developed and provided in U.S. supermarkets.

Although food and diet trends come and go, the basics remain. For thousands of years, rice is one of the most recognized nutritious grains in the world and is a staple of one of the healthiest diets today: the Asian diet.

California rice is a healthful, great-tasting food choice that is an important component in providing your customers with a balanced diet. This wholesome, nutritious grain:

- Contains only about 100 calories per ½-cup serving
- Is cholesterol-free and sodium-free
- Contains only a trace of fat
- Is a complex carbohydrate, which fuels the body
- In its brown form, is a good source of fiber
- Is gluten-free
- Is easy to digest

Rice is a valuable part of **gluten-free diets**, for consumers suffering from **Celiac disease**. Those afflicted with this autoimmune disorder are sensitive to **proteins found in wheat, rye and barley**.

Brown vs. White Rice

Brown rice is milled to retain the rice bran layer, which gives it a nutty flavor and retains more of the vitamins and fiber. White rice is milled to remove the bran layer for a milder taste and texture.

Another option is using Haiga rice. Its texture is that of white rice, with the added benefit of additional fiber.

When planning your menu, remember: the key to healthy eating is consuming complex carbohydrates with moderate amounts of protein and fat. As a matter of fact, the National Academy of Science recommends, “45 to 65 percent of calories comes from carbohydrates, with a minimum of 130 grams of carbohydrates daily to produce enough glucose for normal brain function.”

Also understand that no one diet works for everyone. So before rushing to adjust your menus to reduce or eliminate carbohydrates, consult with a health and nutrition professional to provide information on well-balanced and portioned meals.



Appropriate **water to rice ratios** are important to preparing California rice. Remember to use **1 ½ cups of water** per cup of white medium or short grain rice, and **2 cups of water** for every cup of brown medium or short grain rice.

**Rice Innovations and Terminology**

Over the years, the industry has worked on new technology to help increase efficiency in today’s busy kitchens.

Musenmai or Rinse-Free Rice

This milling process developed in Japan and now available in the U.S. lets you skip the extra step of rinsing rice. Because the process doesn’t affect flavor or consistency, the end result is the same high quality product California rice consumers have come to expect.

Over the years, the industry has worked on new technology to help increase efficiency in today’s busy kitchens.

CHAPTER 5

recipes *with* rice



TUNDRA SWAN | *Cygnus columbianus*

Stately in appearance, the Tundra Swan is a white bird with black feet, a black bill and with yellow coloration near its eyes. It winters in large flocks and often grazes on grain from Sacramento Valley rice fields.



Rice remains one of the most economical foods, at less than twenty-five cents per serving. One cup of uncooked grain makes three cups of cooked rice, providing plenty of servings for the cost-conscious consumer.

Recipes

Rice is a versatile grain that can be prepared in various ways that include

appetizers, soups, entrées, and desserts or as a side dish. California rice's unique attributes include its ability to absorb flavors and retain its moisture over periods of time.

Today, many California-inspired dishes are attributed to the state's diverse history that originated from Mediterranean and Asian regions. This is evident in everyday menus across the state that feature modern versions of sushi, paella, risotto, and other flavored rice side dishes that compliment an entrée's main course. As a result, more and more chefs are discovering California rice as a versatile enhancement to nearly any menu.

Rice can be found in traditional dishes throughout Southern Europe, the Mediterranean and the Middle East. In Italy, there are a multitude of risotto styles and recipes based on regional food production. This is also true in Spain. Its diverse farm regions and production dictate styles and recipes for its national dish, paella. In Greece, grape leaves are filled with seasoned rice to create tangy dolmades that are enjoyed as an appetizer.

Even in its purest form as steamed rice, you will find that California rice has a sweet aroma and flavor; grains will glisten and stay intact when cooked. Enjoy our recipes and, as you develop your menus, consider adding California rice to your restaurant. Another important attribute is that rice is gluten-free and essential for consumers with food allergies.



Sushi first came to America in the early **1970s**, when entrepreneurs from Japan relocated to **Los Angeles** and began serving this culinary art form to their appreciative customers. In fact, the **California Roll** was invented in the Little Tokyo area of Los Angeles.

Seafood Paella

Serves four

$\frac{3}{4}$ lb. monkfish,
cut into 2" pieces or
half lobster tail in shell
 $\frac{1}{2}$ lb. large shrimp,
peel on, deveined
 $\frac{3}{4}$ tsp. kosher salt
 2 $\frac{1}{4}$ tsp. smoky paprika
 4 Tbsp. extra virgin olive oil
 1 $\frac{1}{4}$ cups (6 oz.)
yellow onion, diced
 $\frac{1}{2}$ cup (5 oz.) roasted red
bell pepper, diced
 3 Tbsp. garlic, minced
 2 Roma tomatoes,
finely diced
 1 $\frac{1}{2}$ cups California Calrose
rice, uncooked
 $\frac{1}{2}$ cup dry Spanish sherry
(such as Amontillado)
 3 cups clam juice
or fish stock
 $\frac{1}{4}$ tsp. saffron threads,
crushed
 2 Tbsp. fresh flat-leaf
parsley, minced
 1 $\frac{1}{2}$ Tbsp. fresh lemon juice
 $\frac{1}{2}$ pound mussels,
scrubbed and debearded
 4 lemon wedges



- 1 Place the fish pieces or lobster half on a plate. Season with $\frac{1}{4}$ tsp. salt and $\frac{1}{2}$ tsp. paprika. Set aside. Place the shrimp in a bowl and toss with $\frac{1}{4}$ tsp. salt and $\frac{1}{2}$ tsp. paprika. Set aside.
- 2 Heat 4 tablespoons olive oil in a 12-inch paella or fry pan on medium-high until hot. Brown the fish pieces on both sides, about 1 minute per side. Do not cook through. Transfer to a clean plate.
- 3 Place the shrimp in the pan and cook until the shells are orange, about 1 minute per side. Do not overcook. Transfer to a plate.
- 4 Reduce the heat to medium. Add the onions and the remaining $\frac{1}{4}$ tsp. salt to the pan. Cook, stirring occasionally, until softened and starting to brown, 7 to 10 minutes.
- 5 Add the garlic, roasted red pepper, tomatoes and remaining 1 $\frac{1}{4}$ tsp. paprika. Cook, stirring frequently for 2 minutes.
- 6 Stir in the rice, coating the grains well. Add the sherry and cook for 1 minute. Add the clam juice, saffron, parsley and lemon juice and stir to combine. Bring to a boil, reduce heat to medium-low and simmer until most of the liquid has been absorbed, 20 to 25 minutes. Stir once.
- 7 Tuck the fish, shrimp and mussels into the rice. Cover the pan with aluminum foil. Cook for 5 minutes. Turn off the heat and steam for 5 more minutes. Remove the foil and serve with lemon wedges.

Ginger Cilantro Rice



Serves four

- 1 | In a small bowl, whisk together the coconut milk, sugar, garlic, fish sauce and lime juice. Transfer $\frac{1}{3}$ cup to a large bowl. Add the shrimp. Cover with plastic wrap and refrigerate for at least 2 hours and up to 6 hours. Set remaining coconut mixture aside.
- 2 | Heat the oil in a medium sauté pan over medium heat until almost smoking. Add onions and cook, stirring occasionally until softened, 5 to 7 minutes. Add rice and salt and cook, stirring constantly for 1 minute. Stir in the stock and ginger. Bring to a soft boil. Reduce heat to low and cover. Cook until almost all the liquid has been absorbed, about 20 minutes. Remove from the heat and let stand for 10 minutes. Gently stir in the cilantro.
- 3 | Preheat a grill to medium-high. Place the shrimp on skewers, 5 shrimp to a skewer. Brush the grill with a little oil. Place the shrimp and the asparagus on the grill. Grill, turning the asparagus until all sides have grill marks and the asparagus is tender, 3 to 5 minutes. Grill the shrimp, turning once, until they are cooked through and opaque, 2 minutes per side.
- 4 | Place the reserved sauce in a small saucepan warm over medium heat. Divide the rice between 4 plates. Arrange the shrimp and asparagus on top of the rice and drizzle each dish with 1 Tbsp. coconut sauce. Garnish with chopped cilantro. Serve immediately.

- $\frac{1}{2}$ cup (4.0 oz.) coconut milk
- 1 Tbsp. (0.4 oz.) dark brown sugar
- 1 Tbsp. (0.3 oz.) minced garlic
- 2 tsp. (0.3 oz.) fish sauce
- 2 Tbsp. (1.0 oz.) fresh lime juice
- 1 lb. (16 oz.) large shrimp, peeled and deveined, tail on
- 1 $\frac{1}{2}$ Tbs. (0.75 oz.) canola oil
- 1 cup (4.0 oz.) diced yellow onion
- 1 cup California Calrose Rice, uncooked
- $\frac{1}{2}$ tsp. salt
- 1 $\frac{1}{2}$ Tbs. (0.4 oz.) finely grated ginger
- 1 $\frac{1}{2}$ cup (12 oz.) chicken stock, warmed
- 6 oz. asparagus (about 8 spears), cut on the bias into 3" pieces
- $\frac{1}{2}$ cup (1 $\frac{1}{2}$ oz.) finely chopped fresh cilantro, plus more to garnish

This dish makes an impressive presentation. The shrimp skewer can be laid over the asparagus arranged on top of the rice. This flavorful and colorful rice can also be a nice and versatile accompaniment for grilled salmon or vegetables.

Arroz con Pollo

Serves four

1 Tbsp. extra virgin olive oil

1 to 2 links Spanish chorizo or Portuguese linguica

1 chicken breast, trimmed and halved crosswise

4 chicken thighs, trimmed

1 (14 ½ oz. can) tomatoes, diced

2 ½ cups reduced chicken broth

Salt to taste

¼ teaspoon saffron threads, crushed

½ cup onion, diced

1 cup bell pepper (green or red)

1 garlic clove, minced

1 ½ cups California medium grain rice, uncooked

2 tsp. thyme leaves

½ cup frozen green peas, thawed

2 Tbsp. Spanish olives stuffed with pimientos, sliced



- 1 | Slice linguica into ¼-inch pieces, remove castings if desired. Sauté in a large skillet until cooked through. Remove and drain all but 3 Tbsp. of fat from skillet
- 2 | Sprinkle chicken with salt and pepper. Add to the skillet(s) and cook for 10 to 15 minutes, turning once, until browned and cooked through. Remove from skillet
- 3 | Add onion and bell pepper to the skillet; cook for about 5 minutes until lightly browned. Add garlic and cook for 1 minute more.
- 4 | Drain tomatoes and place their liquid into a measuring cup and add broth. Add enough water to make 3 ¼ cups of liquid. Place in a saucepan and bring to a boil, then cover and keep warm.
- 5 | Add rice to skillet and stir until well coated with oil. Add salt and saffron to broth mixture and pour over rice. Then place tomatoes and thyme on top.
- 6 | Tuck chicken pieces into the rice and top with tomatoes and thyme. Then sprinkle linguica on top. Cover and cook for 15 to 20 minutes or until most of the liquid has been absorbed.
- 7 | Add peas; remove from heat, covered, and let stand for 10 minutes. Sprinkle with sliced olives and serve.

Winter Squash Risotto



Serves four to six

1 medium onion,
finely chopped

1 ½ cups California
Koshihikari short grain rice,
uncooked

¼ cup dry white wine

8 cups chicken stock,
(preferably home made)
brought to a simmer

2 cups winter squash
(such as butternut or acorn)
cut into ¼" dice and
blanched in simmering
chicken stock until just
tender

4 oz. chanterelle
mushrooms, cleaned
and quartered

Several sage leaves,
finely chopped

Olive oil for cooking

½ cup Parmigiano Reggiano

5 Tbsp. unsalted butter,
softened

- 1 | Heat 1 ½ Tbsp. olive oil in a medium saucepan over medium heat. Sauté the onion until soft, about 8 to 10 minutes.
- 2 | Add the rice and stir to evenly coat the grains with the oil. Add the wine and cook until pan is almost completely dry.
- 3 | Turn heat down to low and begin adding hot broth, about ½ at a time, stirring constantly, continue cooking keeping the broth just above the surface of the rice. Season with salt.
- 4 | Meanwhile, sauté the mushrooms in 1 Tbsp. butter until just tender. Season the mushrooms with salt and pepper and add to the rice along with the cooked squash.
- 5 | When rice is just tender, add the remaining butter and cheese and stir vigorously with a wooden spoon. Check seasoning and serve in shallow bowls with additional cheese.

*By Kurt Spataro
Partner-Executive Chef
Paragary Restaurant Group*

Tofu & Vegetable Fried Brown Rice

Serves four

- 4 Tbsp. light soy sauce
- 1 $\frac{1}{2}$ tsp. Sriracha
(Thai-style hot sauce)
- 2 Tbsp. garlic, minced
- 2 Tbsp. ginger, minced
- 8 oz. firm tofu
(vacuum-packed or drained
and patted dry with paper
towels) cut into $\frac{1}{2}$ " cubes
- 3 Tbsp. canola oil
- 2 cups (4 oz.)
shitake mushrooms, sliced
- 2 $\frac{1}{2}$ Tbsp. water
- 4 green onions, cut on
 $\frac{1}{4}$ " bias, $\frac{3}{4}$ cup green
and white parts
- 1 $\frac{3}{4}$ cups (4 oz.) snow peas,
ends trimmed and blanched
- $\frac{3}{4}$ cup (3 oz.) 2" julienned
carrots, blanched
- 3 cups California medium
grain Calrose brown rice,
cooked (cold)
- 2 eggs lightly beaten
- $\frac{1}{3}$ cup fresh cilantro,
chopped



- 1 | In a small bowl, combine the soy sauce, sriracha, garlic, and ginger. Add the tofu and gently stir to coat. Cover with plastic wrap and refrigerate for at least 2 hours and up to 1 day. Drain and reserve marinade. Set aside.
- 2 | Heat 2 Tbsp. canola oil in a wok over high heat until almost smoking. Add the drained tofu and cook, stirring often until browned, about 3 minutes.
- 3 | Add the mushrooms and water and cook, stirring often until softened, about 3 minutes. Add the green onions, snow peas and carrots. Cook, stirring constantly, until the vegetables are tender, about 2 minutes. Transfer to a plate.
- 4 | Heat the remaining 1 Tbsp. oil in the wok until almost smoking.
- 5 | Add the rice and cook, stirring constantly until the grains are separate and lightly browned. Add the reserved marinade and stir to combine. Make a well in the center of the rice.
- 6 | Add the eggs and cook until about halfway cooked, stirring occasionally. Stir into the rice, cooking until completely cooked, about 30 seconds.
- 7 | Add the vegetables and cilantro and toss to combine. Serve immediately.

Steamed California Rice



Serves five

3 cups California premium medium grain rice, uncooked

3 $\frac{3}{4}$ cups water

Optional Japanese Method:

Wash rice for 30 minutes before you start to cook

Tools:

Strainer

Large Bowl

Rice cooker

- 1 | Place 3 cups of rice with 1 cup of water into a bowl.
- 2 | Wash rice. Press firmly using your palm for 1 minute.
- 3 | Rinse with water, and repeat three to four times.
- 4 | Drain water and let rice sit for 30 minutes.
- 5 | Place rice in a rice cooker and add 3 $\frac{3}{4}$ cups of water.
- 6 | Switch on your rice cooker.
- 7 | It takes about 20 minutes to cook rice. Let the rice remain in the rice cooker for another 15–20 minutes to complete the steaming process.

Tips

- “New crop” rice — 3 cups rice : 3 cups water (1:1)
- Sushi connoisseurs can use Koshihikari short grain rice, that is traditionally used for sushi in Japan.

*Courtesy of Chef
Andy Matsuda,
Sushi Chef Institute*

Sushi Rice

Serves four

9–10 cups cooked
sushi rice

$\frac{1}{8}$ cup rice vinegar

2 Tbsp. sugar

$\frac{1}{2}$ Tbsp. sea salt

Tools:

Wooden bowl or large
shallow glass mixing bowl

Wooden Spatula



*Courtesy of Chef
Andy Matsuda,
Sushi Chef Institute*

- 1 | First, place steamed California rice into the wooden bowl and set aside.
- 2 | In a glass mixing bowl, combine rice vinegar, sugar and sea salt. Heating rice vinegar will help dissolve sugar and salt more quickly, (see tips).
- 3 | Lightly pour sushi seasoning vinegar over all the steamed rice.
- 4 | Mix using a cutting or slicing motion, ensuring that all rice is covered with sushi seasoning.
- 5 | Wait for a few minutes after initial mixing.
- 6 | Flip all of the seasoned sushi rice in the bowl to cool the other side of the sushi rice.

Tips

- Heating rice vinegar is optional, use glass container and not metal. Some professionals opt to not heat vinegar by making the seasoning ahead of time and aging it in the refrigerator. Simply mix all seasoning ingredients and mix occasionally and it will break down. Try this one day ahead of making sushi and refrigerate.
- The perfect steamed rice to sushi seasoning ratio should be 10 cups of steamed sushi rice to 1 $\frac{1}{2}$ cups of sushi rice seasoning.
- Sushi rice should be served at room temperature for a home sushi party.
- It is recommended to make sushi and eat as soon as possible.
- Please refrain from keeping sushi rice out for long periods of time. Like most food, it will require refrigeration. Sushi rice is best when used immediately.

California Rolls



Serves four

- 4 sheets dried seaweed (nori)
- 4 cups sushi rice
- 1 avocado
- ½ lb. imitation crab (Kanikama)
- 1 Tbsp. mayonnaise with Masago (smelt fish egg)
- ½ tsp. each of mirin & soy sauce
- ½ cup of tobiko (flying fish roe)
- Sesame seeds to taste
- Wasabi & pickled ginger for decoration

- 1 | Peel avocado and cut it into strips it. You will need 2 pieces per roll.
- 2 | Put imitation crab in a bowl and mix with soy sauce, mirin and mayonnaise.
- 3 | Cover a bamboo mat with plastic wrap. Put a sheet of dried seaweed on top of the mat rough side up.
- 4 | Spread sushi rice (4 oz.) on top of the seaweed and press firmly.
- 5 | Sprinkle sesame seeds over the sushi rice.
- 6 | Turn the sushi layer over so that the seaweed is on top. Place avocado and mixed crab (2 oz.) lengthwise on the seaweed.
- 7 | Roll the bamboo mat forward, pressing the ingredients inside the cylinder-shaped sushi. Press firmly on the bamboo mat with hands, then remove the rolled sushi.
- 8 | Lightly place and spread tobiko on a long plate, gently roll the California roll over the tobiko until its completely covered.
- 9 | Wipe the knife with a wet cloth before slicing sushi. Cut the sushi roll into about 8 bite-sized pieces.
- 10 | Decorate the rice dish with wasabi and pickled ginger.

*Courtesy of Chef
Andy Matsuda,
Sushi Chef Institute*

Brown Rice, Dates and Peppered Bacon

Serves four to six

1 cup California premium medium grain, brown rice, uncooked

2 $\frac{1}{4}$ cups water

$\frac{1}{2}$ cup dried dates, chopped

3 strips peppered bacon, cooked

$\frac{1}{4}$ cup chives, chopped

1 Tbsp. maple syrup

Salt and pepper to taste



- 1 | Combine rice and water in a medium saucepan. Bring to a soft boil.
- 2 | Reduce heat to low. Cover and cook for 50 minutes or until liquid is adsorbed.
- 3 | Remove from heat. Let stand covered for 10 minutes before serving. Let rice cool slightly.
- 4 | Immediately stir in the remaining ingredients. Serve hot or cold.

Asian Rice Chicken Salad



Serves four to six

Dressing

- 2 Tbsp. rice wine vinegar
- 1 Tbsp. soy sauce
- $\frac{1}{2}$ tsp. sesame oil
- 1 tsp. sugar
- 1 tsp. black sesame seeds
- $\frac{1}{2}$ tsp. fresh ginger, grated

Salad

- 2 cups California Calrose medium grain brown rice, uncooked
- 3 green onions, chopped
- $\frac{1}{4}$ cup red bell pepper, finely diced
- 10 snow peas, blanched and cut into thirds, lengthwise
- $\frac{1}{4}$ cup water chestnuts, coarsely chopped
- $\frac{1}{4}$ cup cilantro leaves
- 1 (6 oz.) grilled chicken breast, shredded
- 6 Boston lettuce leaves
- $\frac{1}{2}$ cup peanuts, diced

- 1 | Let rice cool to room temperature.
- 2 | In a small bowl, mix vinegar, soy sauce, sesame oil, sugar, sesame seeds, and ginger together. Set aside.
- 3 | In a large bowl, place the rice and half of the dressing, mix. Add to the rice, onions, red peppers, snow peas, water chestnuts, cilantro, and chicken. Toss gently.
- 4 | Serve on Boston lettuce leaves and dust with chopped peanuts.

Chocolate Cranberry Rice Pudding

Serves four

2 cups whole milk,
or more if needed

2 cups California rice,
cooked

$\frac{1}{4}$ cup sugar

4 oz. semisweet or
bittersweet chocolate,
chopped

$\frac{1}{2}$ cup heavy cream,
more if needed

1 large egg

1 Tbsp. pure vanilla extract

$\frac{1}{4}$ cup cranberries, dried



- 1 | Combine the milk, rice and sugar in a saucepan; heat, stirring, over medium heat until the mixture boils. Boil gently over medium to medium-low heat, stirring often, until thickened, 15–20 minutes.
- 2 | Stir in the chocolate until melted. To expedite melting of chocolate, microwave for about 1 minute at medium high and then stir into mixture.
- 3 | In a small bowl, whisk the cream and egg until blended. Stir a little of the hot rice mixture in the cream mixture to temper the egg. Stir the egg mixture in the rice and cook, stirring, until the pudding boils. Remove from heat; stir in the vanilla and cranberries.
- 4 | Serve warm, with heavy cream, or serve cold. Add more cream or milk as needed to thin the pudding, which will thicken as it stands.

CHAPTER 6

glossary & resources



RIVER OTTER | *Lutra canadensis*

Insulated by a thick, water-repellant fur coat, the River Otter resides in burrows close to the water's edge in a variety of ecosystems throughout North America. One of their favorite foods is crayfish that inhabit Sacramento Valley rice fields.

Glossary & Resources



More consumers are interested in **world cuisine**, which benefits rice demand. **Distribution of rice** through ethnic markets is one of the **fastest growing areas** of sales in the U.S.

Glossary

Amylose — a component of starch in rice that when in higher proportion produces firm and fluffy grains, such as in long grain rice.

Amylopectin — a component of starch in rice that when in higher proportion produces soft, sticky grains, such as in short grain rice.

Arborio — a popular medium grain rice that originated from Italy. It's often called a short grain and has a white opaque center that retains its firmness. Hybrids are grown in the U.S.

Aromatic rice — a general term for a group of long grain rice with notable fragrant aromas that are nutty or popcorn-like.

Basmati rice — an aromatic long grain rice that elongates when cooked. This variety originated from India and Pakistan. Hybrids are grown in the U.S.

Black Japonica — can be both a medium or short grain rice and is known as “black sticky rice.” It has a deep black/purple color and a nutty aroma and flavor. Hybrids are grown in the U.S.

Bran — the outer layer of the rice kernel after the hull is removed. Rice bran ranges in color (due to the presence of naturally antioxidant-rich pigments) from tan to brown, and from red to purple-black.

Brewer's rice — also known as “broken rice” and was primarily used for beer brewing at one time.

Brown rice — at this stage, brown rice has a bran layer that has been left intact, prior to becoming white rice. It has a chewy texture and nutty taste and requires more water and cooking time. Now recognized by the U.S. Food and Drug Administration as a whole grain.

Calrose — a medium grain rice that is the most popular variety grown in California.

Calmochi rice — a short grain variety that is grown in California. Mochi, or sweet rice, is a glutinous rice used in traditional Japanese rice cakes, desserts and puddings. This variety is round, opaque, and very soft when cooked.

Celiac disease — a digestive disease in which sufferers are not able to digest gluten, the protein found in certain grains such as wheat, barley, rye, and possibly oats. Rice is naturally gluten free and is a grain frequently used in gluten-free cooking.

Endosperm — the large interior of the rice kernel, which includes most of the protein, starch, vitamins and minerals.

Enriched (Enrichment) — most of the white rice sold in the U.S. is enriched with a thin coating of thiamine, niacin, iron and fortified with folic acid. It is important to avoid rinsing enriched rice to prevent the loss of water-soluble nutrients.

Germ — the embryo of the rice, which would sprout into a new plant if allowed to germinate. The germ contains most of the oil in the rice kernel.

Gluten — protein found in wheat, barley, rye and possibly oats. Gluten is indigestible for some people who have gluten sensitivity or suffer from Celiac disease. Rice is naturally gluten free and is a grain frequently used in gluten-free cooking.

Glutinous rice — another name for rice that does not have amylose starch and is therefore very soft and sticky. Glutinous rice does not contain gluten and is also referred to as sweet or waxy rice.

Haiga — a fully milled rice kernel that retains its germ where many of the kernel's natural nutrients reside.

Indica — one of two types of rice of *Oryza sativa*. Indica rices are characterized by fluffy, separate kernels when cooked and are typically long grain rices that grow near the equator.

Japonica — one of two types of rice of *Oryza sativa* and the overwhelming type of rice produced in California. Japonica rices, which fare well in temperate and mountainous regions, usually are the medium and short grain varieties. The sticky and moist characteristics of japonica rices make them ideal for Mediterranean and Asian cuisines.



Rice is not only a **global staple food**, its popularity is growing on dinner tables across America. Per capita rice consumption is more than **28 pounds**, which marks a slow and steady increase in the last decade.

Jasmine rice — is considered an aromatic rice that can be a medium or long grain. It emits a floral aroma and is a bit moist, unlike typical long grain varieties. This variety originated from Thailand. Hybrids are grown in the U.S.

Hull — the fibrous indigestible shell of the rice kernel. It is removed at the beginning of the milling process to make rice edible.

IQF rice (*Individually Quick Frozen rice*) — individually frozen rice grains cooked before packaging to provide a free-flowing ingredient for use in frozen and prepared food products.

Kernel — a grain of rice, generally consisting of the hull, bran, germ and endosperm.

Long grain rice — this rice kernel is four to five times longer than it is wide and has higher levels of amylose, the inner portion of a starch granule, that makes long grain rice fluffy and separate when cooked.

Mahogany Japonica — can be both a medium or short grain rice. It is reddish brown in color and has a nutty aroma and flavor. Hybrids are grown in the U.S.

Medium grain rice — this rice kernel is two to three times longer than it is wide and has a lower amylose level that provides a more sticky consistency when prepared. Japonica varieties account for about 95 percent of the rice grown in California.

Milling — the steps by which unprocessed paddy rice is turned into whole grain rice and white rice.

“New crop” rice — Highly coveted among discriminating consumers, this freshly harvested grain has a somewhat different texture and higher moisture content.

Oryza sativa — rice is known botanically as *Oryza sativa* and is considered a grass, as are barley, oats, rye and wheat. Unlike these grains, rice is non-gluten grain that can be beneficial to consumers with food allergies.

Paddy rice (*also known as rough rice*) — unprocessed rice that includes the inedible fibrous hull. Paddy rice is indigestible and must be milled to produce rice for human consumption.

Parboiled (*Converted*) — paddy rice that is pressure steamed before it is milled, partially cooking the starch before further milling. Parboiled rice is not “precooked” (instant) rice. Like regular milled rice, it must be fully cooked before serving. Cooked parboiled rice results in a product that is firmer and more separate than regular milled rice. By pressure steaming the entire kernel, some of the nutrients in the bran layers are driven into the endosperm along with pigments that make the rice a pale yellow color. “Converted” rice is the same as parboiled rice, but uses a term trademarked by Uncle Ben’s brand.

Polishing — producing white rice by putting dried grains in machines that rub them together under pressure to remove the bran.

Precooked (*Instant*) — brown or white rice that is completely cooked after milling and dried. As a result, precooked rice only requires rehydration or short cooking before serving.

Premium medium grain rice — similar to a medium grain, this rice kernel is two to three times longer than it is wide. However, it has a lower amylose level and is stickier than a medium grain. It has more short grain attributes and is preferred in sushi in the U.S. because it retains its moisture longer and is more economical than a short grain.

Red rice — an aromatic rice that has a reddish-brown layer and has a nutty flavor and chewy texture.

Rough rice — see *paddy rice*

Sheller — a machine that removes the inedible outside hull from rice kernels during the milling process.

Short grain rice — varieties are rounder, softer, and stickier when cooked in comparison to a medium grain rice. It is the preferred type of rice that is used in sushi in Japan.

Sweet rice — see glutinous rice

Waxy rice — see glutinous rice.

Wild rice — wild rice is a whole grain that is not botanically (*Zizania aquatica*) in the rice family. It grows in cool climates in North America, with primary U.S. production in Minnesota and California.



There are many different **options** when you seek out **California rice**. For a complete list of what is available at **retail and wholesale**, go to: www.calrice.org/brands

Resources

Rice Industry

www.calrice.org — The official California Rice Commission website. The commission represents farmers and millers of California rice. This site features industry information, recipes, identifying California rice brands, and provides commercial contacts/suppliers.

www.sushimasters.com — SushiMasters is a professional sushi competition developed by the California Rice Commission. The site lists past winners and posts information about future competitions in the area.

www.menurice.com — USA Rice Federation web site for food service professionals features U.S. rice information, news, trends, chefs, cooking methods, recipes, education resources and U.S. rice suppliers.

www.usarice.com — The official USA Rice Federation website. The Federation represents U.S. rice farmers and millers in both domestic and international markets. This site features industry information, news, recipes, image library and U.S. rice suppliers.

www.riceweb.org — A Web site produced by the International Rice Research Institute in the Philippines has an international focus on rice.

Agriculture/Government

www.usda.gov — The U.S. Department of Agriculture site that houses information and data on consumption, usage, research and rice production issues.

www.nass.usda.gov — Provides reports concerning the U.S production of rice. Historical, Graphical Data, and Census are also available.

archive.gipsa.usda.gov/reference-library/standards/ricestandards.pdf — Rice Grades

www.nal.usda.gov/fnic/foodcomp/search — Nutrition information for rice.

Health/Nutrition

www.csaceliacs.org — Celiac Sprue Association is a member-based non-profit organization dedicated to helping individuals with celiac disease worldwide through education, research and support.

www.wholegrainscouncil.org — The Whole Grains Council is a nonprofit consumer advocacy group working to increase consumption of whole grains for better health. The WGC's many initiatives include programs for food service.



For a complete list of California rice brands available at retail and wholesale, visit www.calrice.org/brands.



California Rice

California Rice Commission
www.calrice.org