

Oryza

Gramineae

[*Poaceae*]

Oryza is derived ultimately from an Asiatic name and is both a Greek and Latin name for rice. Rice is depicted in China's national coat of arms, and also that of Vietnam.

References to rice appear in the ancient Dravidian literature of peoples of southern India, and both early Hindu and the Dravidian records describe several varieties. Although it is likely that southern India could be the home of the rice plant the main responsibility for the cultivation and development of rice on dry, swampy or irrigated land would appear to lie primarily with China. (Records of about 2800 BC refer to rice as one of the five sacred Chinese cultivated plants – the others being barley (*Hordeum*), millet (*Panicum*), soya (*Glycine max*), and wheat (*Triticum*.) In the Ganges delta in India it is said to have been first cultivated from about 2000 BC but authorities note that in a large part of the whole of India it has provided a staple food for thousands of years. Rice spread north from India through neighbouring countries to China where it has probably been grown for more than 7000 years – certainly since 3000 BC. The plant is then believed by many to have appeared in the Philippines around 2000 BC and in Japan (with what is now South Korea) and Indonesia in about 1 BC.

When rice first reached China the Country was dominated from the north by wheat (*Triticum*) and millet (*Panicum*). Rice cultivation began in the marshlands of the Yangtze Delta and for the northerners was to remain an exotic luxury for some long time. As in the Middle East with wheat, barley (*Hordeum*) and millet, rice cultivation led to the formation of communities in the rice-growing Orient too, particularly in river deltas that were found to be most suitable for the plant. Relatively Chinese rice farming techniques have altered little over hundreds of centuries and illustrate their ingenuity and systematic attention to detail from the earliest periods. By the time of the rule of the Sung dynasty (960-1279), if not far earlier, reliance on rice with bean curd soup had become widespread through most of China – which for the general populous had ultimately superseded the previous soya beans (*Glycine max*) and water as the symbol of poverty. During this dynasty Hangzhou was the Country's capital and probably more than anywhere else in China had access by then to an amazing number of varieties. It is said that the citizens were consuming 2 lb. 5 oz. each daily. Not only was the grain itself eaten but it was also made into flour and it was fermented for wine. 54 varieties of rice wine were recorded at that time.

Persia (now Iran) exported rice to Mesopotamia and Turkestan – and the plant was also known of in ancient Greece after the Indian campaign of Alexander the Great (356-323 BC), king of Macedonia. But there is no evidence to show that the ancient civilizations of Egypt, Greece and Rome ever included rice as a staple part of their diet – for the latter especially it was thought of primarily as a medicine and where the Egyptians were concerned it only began to be cultivated in their land from the 6th or 7th Centuries. However in subsequent years Arab travellers were to encourage the wider acceptance of the grain as a food in Mediterranean countries, their influence being felt particularly in Morocco, Spain (from about 711) and Italy (from about 10th Century according to some authorities). Then in about the 12th or 13th Centuries Crusaders returning home to western

and northern Europe from the eastern Mediterranean introduced the rice plant to more far-flung parts of the European Continent.

Various great schemes and experiments have taken place in different parts of the European Continent over the centuries to encourage and establish rice cultivation but they have met with little lasting success on any significant scale – apart possibly from those in Portugal, the Camargue in France and in parts of the Po river basin in northern Italy – an area (the latter) that first bore a rice crop in 1475 and in recent years experienced severe flooding (with loss of life) due according to environmentalists to drastic deforestation. With regard to the Camargue records suggest that rice was initially cultivated in the salt marsh in about 1603 and it is thought to have failed then because of the salinity of the water. The most recent planting was in 1942 when France was faced with severe food shortages during World War II – and this time the salt water was pumped out and fresh water pumped in (the latter from the River Rhône). Allied Indo-Chinese and Malaysian troops stationed in Provence (who were believed to be conversant with the crop) were called upon to grow rice in the Camargue area. Today these rice fields compete with campers for space (land) as their initial 25,000 acres had increased to 1,600,000 acres in the 1970s and the yield that began as nearly twice that in good tropical conditions has also been improved upon by at least a further 25%. But the project is under some threat at the turn of the 20th and 21st Centuries as it is the subject of heated debate among the French, primarily for environmental reasons – apart from the increasing competition from the campers. The rice fields have brought both mosquitoes and agricultural weedkillers and insecticides and they have contributed, with oil exploration, to corralling the remaining wild bulls into a small area as the animals are terrified by the mechanical harvesters. One could say too that nature is contributing its own comment. Pink flamingos from the Pont-du-Gaut zoological gardens have trampled the crops (so badly in 1980 that fields were severely damaged) despite scarecrows – and notices (what erudite birds).

Authorities believe that it was not until about the 10th Century (AD) that both Arab and Indian traders first introduced rice to Madagascar – and the Island was destined to gain quite a reputation for the quality of its rice harvest. Sadly however things are very different today. It is understood that Madagascar is in such economic straits that she even finds it difficult to meet the minimal charges for the rice that is now imported from the Republic of China.

In the 15th Century rice was introduced to the Dutch and Portuguese West African colonies. In Africa rice has had to compete with cereals such as sorghum (*Sorghum bicolor*), millet (*Panicum*), maize (*Zea*) and other crops (even peanuts, *Arachis hypogaea*) and as yet has not been able to dominate them.

For the Americas rice was introduced with the appearance of the Europeans. Although the Portuguese and the Spanish took the plant to South and Middle Americas in the 16th Century two hundred years passed before it was starting to be accepted generally in either region. It had to make inroads on established maize (*Zea*) and other native crops that apart from their familiarity were also closely bound up with thousands of years of traditional and religious practice. These last probably explain why rice, until today, never really had any likelihood of contributing significantly to the South American foodstore. Expensive modern technology however has finally helped to tip the balance and rice is ever increasing in importance in the southern Continent.

The successful cultivation of rice in North America appears to have followed an unanticipated event that occurred at the end of the 17th Century. Prior to this Britain had expected the early settlers in Virginia to grow rice (even though they were unfamiliar with it as little if any was eaten in Britain at that time) but it proved to be unsuccessful as the colonists did not know how to tend the plant. Then in 1694 according to one of the story's versions a

cargo of untreated rice from Madagascar was shipwrecked on the South Carolina shoreline (United States) and in thanks to the colonists who came to the Captain's rescue several sacks of this were handed over and duly planted by some of the settlers. The resultant crop is said to have been even better than that obtained in the Far East and was to become famous as 'Carolina rice'. At the end of the 17th Century several factors converged to South Carolina's advantage. It was appreciated that the coastal swamps provided water, the area experienced an influx of Huguenot refugees from French persecution and they became involved in the rice cultivation – and the slave trade provided the cheap labour (South Carolina was to import the greatest number of slaves). In fact the venture was so successful that during the 18th Century rice came to be known in that State as 'Carolina gold'. Rice cultivation spread across the southern States and today the United States is the sixth largest producer. The relatively small amount of rice now raised in the United States, compared with that in the East, is grown in the States of Louisiana, Arkansas, California and Texas. That rice crop however was sufficient to ruffle some feathers in the 1990s before the initial tortuous world talks on GATT were concluded (the General Agreement on Tariffs and Trade the successful negotiation of which was intended to prevent future trade wars), as the United States wished to be able to export some of her rice harvest to the East. Apparently American exporters had met trade barriers in such countries as Japan where rice farmers appeared to have received massive subsidies that rivalled any elsewhere and created added obstacles in achieving GATT objectives.

Although rice is not an obvious staple food in Latin America there are now areas in the region where every meal is or includes rice and beans. In Asian countries where rice predominates, consumption may best be illustrated by comparison with that in the United States. The annual amount per American head would be equivalent to two weeks' supply per person in the East.

Surprisingly in the views of some authorities there would seem to be little going for rice nutritionally despite the fact that it is believed to be the most popular cereal in the world. In fairness the commercially prepared rice familiar in the West has lost much of its nutrition during processing. But it is not only considered to offer the poorest level of protein of all grains eaten, it is also given a rating of second to cassava, *Manihot esculenta*, (the worst) in actually creating nutritional deficiencies – and is also not the most abundant of cereal crops.

In the East rice is both sacred and a symbol of fertility and often features in religious and traditional ceremonies. It is particularly revered in both the Hindu and the Shinto religions. In Japan the Emperor, even in the latter half of the 20th Century, has participated in the ritual rice harvest on the small paddy field situated within palace grounds. The fertility symbol may even be reflected in the relatively young, Western traditional custom of throwing rice (now more often paper confetti) over newly married couples as they leave the wedding ceremony as a token of prosperity and abundance. This is believed to have begun in the United States and may have been adopted there from oriental immigrant practices.

One particularly important additional use to which the paddy fields are put is fish farming – and in the East the fish are generally carp. Apparently fish actually enhance the fertility of the rice.

Medicinally, rice has been used in India to treat inflammatory diseases. It has also been recommended as a convalescent food (notwithstanding nutritional deficiencies) when recovering from dysentery or diarrhoea. Polishings from the rice mills (because of their high vitamin B content) have been used to treat beriberi.

There are thousands of varieties of rice (including some fragrant ones). But apart from one or two well-known types rice is generally recognized, non-botanically in Europe and North America, not so much by the species of plant that produced the seeds as by the type of processing the seeds have received. There are many different commercial English names for long and short grain rice available in Europe and North America and some of these include

Basmati rice is a very tiny, long-grained Indian rice that has a distinctive flavour;

brown rice (that can be called **husked** or **whole rice**) is the de-husked seed;

Camolino rice has been polished and coated lightly with oil;

Carolina rice was once the name used for a particular variety imported by the United States;

glacé rice has received all conventional processing and is then coated with French chalk suspended in a glucose solution to give the grain a gloss;

ground rice (also known as '**rice semolina**' or **rice flour**) is ground fragments of very white rice;

Paddy rice is the unhusked seed;

perfumed rice has a distinctive taste and comes from Thailand and Vietnam;

polished rice has been de-husked, further outer layers removed and after this process any remaining flour sticking to the grain is also removed in another machine;

popped rice the grains react similarly to popcorn when they are heated to 200⁰C in oil;

precooked rice has been de-husked or blanched, steeped, boiled for 1-3 min. and dried at 200⁰C;

puffed rice has either been roasted and fried on sand (as in India) or subjected to heat first at high pressure and then low pressure (as in the United States);

rice flakes grains that have been steamed, de-husked and flattened into thin flakes and are used as a breakfast cereal;

steamed or **pre-treated rice** has been cleaned scrupulously, steeped in hot water, steamed at low pressure, de-husked and blanched;

sticky rice is a specific type of long-grain rice with an unusually high starch content;

Surinam rice is a very long thin-grained rice from Surinam;

white rice (that can be called **unpolished rice**) is the de-husked seed with some further outer layers removed mechanically.