

Rice Races and Varieties



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Introduction

The majority of commercially grown rice in the world is in the *Oryza sativa* family.

Rice Races

A race is a genetically and often geographically distinct mating group within a species. Below are some races presently being used in breeding programs: Japonica, Javanica, Indica and African rice.

Japonica – one of the two major eco-geographical races of *O. sativa*. It is found in the cooler zones of the subtropics and in the temperate. It has narrow, dark green leaves, short to intermediate plant stature and grains which are short and roundish.

Javanica – Javanica refers to particular varieties in Indonesia which belong to the japonica race. These varieties have broad, stiff, light green leaves. It is low-tillering with a tall plant stature. Grains are long, broad, and thick.

Indica – the other major eco-geographical races of *Oryza sativa*. It is the major type of rice grown in the tropics and subtropics. Indica has broad to narrow, light green leaves and tall to intermediate plant stature. Indica plants tiller profusely. Grains are long to short, slender, somewhat flat, and awnless.

African rice - African rice or *Oryza glaberrima* is domesticated [rice](#) grown in West Africa which has lower yields and poorer quality grain than *O. sativa* but shows more tolerance to biotic and abiotic stresses.



Japonica variety



Javanica variety



Indica variety

Modern Rice Varieties

Inbred

An inbred rice variety is a pure line. This means that the offspring or succeeding generations produced by this variety will have the same genetic makeup. It is the result of selecting an offspring or progeny plant from a cross between two or more different varieties after it has attained genetic uniformity through several cycles of self-pollination or inbreeding.

Hybrid

Hybrid varieties exploit the phenomenon of hybrid vigor for increasing the yield potential of rice beyond the level of inbred modern rice varieties.



Hybrid variety

Transgenic Rice

Broadly speaking "transgenic rice" refers to any rice plant that carries foreign gene(s) introduced through genetic engineering techniques.

Rice Breeding

The commonly used breeding methods are mass selection, pure-line selection, pedigree selection, bulk method, and the backcross method. Other breeding approaches are population breeding/recurrent selection, single seed descent, and hybrid rice.