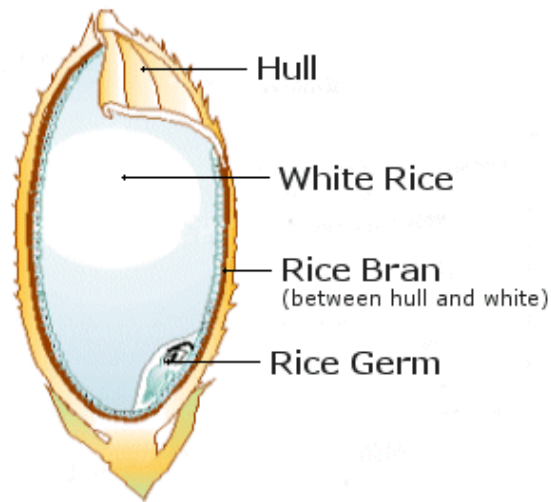


# PRODUCT REFERENCE

## Rice for human consumption or processing

### Rice anatomy



### Rice viability

#### Viable rice

Rice with an intact germ is viable and capable of germination.



Germ intact

Figure 1: Viable rice

Source: <http://www.xn--12cg1cxchd0a2gzc1c5d5a.net/wp-content/uploads/2015/03/germ-content2.jpg>

### Non-viable rice

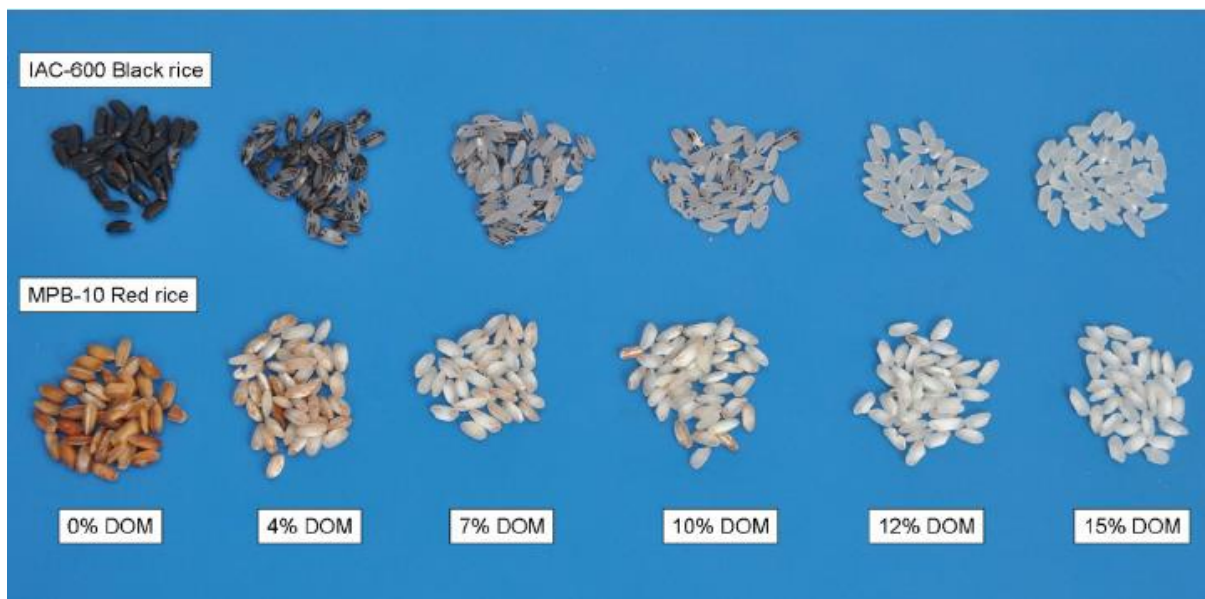
Rice that has been sufficiently milled to remove most or all of the germ is not viable and is no longer capable of germination.



**Figure 2: Non-viable rice**

Source: [http://i01.i.aliimg.com/img/pb/623/090/113/113090623\\_947.jpg](http://i01.i.aliimg.com/img/pb/623/090/113/113090623_947.jpg)

Some rice varieties, such as black glutinous or red rice, will maintain some of their natural colour when milled. The key distinguishing feature of non-viable rice is the absence of a germ, not the colour of the grain.



**Figure 3: De-hulled black rice and red rice samples subjected to different degrees of milling**

Source: [https://www.researchgate.net/profile/Jose\\_Berrios2/publication/262936595/figure/fig4/AS:296462211665932@1447693507329/Fig-4-Dehulled-black-rice-and-red-rice-samples-subjected-to-different-degrees-of.png](https://www.researchgate.net/profile/Jose_Berrios2/publication/262936595/figure/fig4/AS:296462211665932@1447693507329/Fig-4-Dehulled-black-rice-and-red-rice-samples-subjected-to-different-degrees-of.png)

## Rice colours and varieties

### *Oryza* spp.

**Paddy rice:** Is defined as the whole natural grain of the rice with germ and outer hull (husk) still intact. Paddy rice is capable of germination.

**Note:** This term applies to all rice colours and varieties with germ and outer hull intact.



**Brown rice:** Is defined as the whole natural grain of the rice with the outer hull removed, but the pericarp, testa and germ still intact. Brown rice is capable of germination.

**Note:** This term applies to all rice colours and varieties that have the pericarp, testa and germ still intact; not just brown-coloured rice.



**White milled or polished rice:** Is defined as the grain with outer hull removed and milled to remove the germ rendering it incapable of germination. The grain is polished to produce smooth white/amber polished rice.

**Note:** This term applies to all rice colours and varieties that have been sufficiently milled and polished to remove the natural colour.



Source: <https://3.imimg.com/data3/IT/OJ/MY-8642053/polished-rice-500x500.jpg>

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**Parboiled white rice:** Is defined as grain that has been boiled in the husk, then dried and polished to remove the husk and remaining germ rendering it incapable of germination. Parboiled rice has a glassier appearance than conventional milled rice.

**Note:** Parboiled brown rice (or any coloured variety with an intact germ) may be capable of germination.



Source:  
<http://www.parboilrice.com/imgs/portfolio/parboiledrice100sortex2.jpg>

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**Red rice:** Refers to varieties of rice that are coloured red by their anthocyanin content. The grain may maintain some of its natural colour when milled and polished.

**Note:** Many varieties of red rice are commonly eaten un-hulled or partially hulled, and are therefore capable of germination.



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**Black (including black glutinous) and purple rice:** Black rice is also known as purple rice. Black rice contains one of the highest levels of anthocyanins found in food. The grain may maintain some of its natural colour when milled and polished.

**Note:** Many varieties of black and purple rice are commonly eaten un-hulled or partially hulled, and are therefore capable of germination.



Source:  
<https://sc02.alicdn.com/kf/UT8NSjpXvhaXXagOFbXs/THE-BEST-QUALITY-VIETNAM-BLACK-GLUTINOUS-RICE.jpg>

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### ***Zizania palustris* and *Z. aquatica***

**Wild rice:** Wild rice is different to rice of the *Oryza* species. Wild rice is a very long narrow seed, about 10-20 mm long and only about 1-2mm wide.

Processed wild rice has been de-hulled, cured and dried, rendering the grain incapable of germination. The grains are shiny black in appearance and brown in the centre, not green.



Source:

<http://www.seriousseats.com/images/2014/02/20140203-grains-wild-rice.jpg>