

# Measuring varietal purity



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## Why do we measure varietal purity?

For seed to be classified as "good or certified," it must be able to pass a seed certification standard that determines whether the seed is true to varietal type.

## How do we measure varietal purity?

The measurements needed to determine varietal purity are grain size and shape, 1000-grain weight, and number of red grains in the sample.

### Grain size and shape

Grain size and shape (length-width ratio) is a very stable varietal property that can be used to measure the varietal purity of a sample. Comparing the length-width ratio of the sample with a published ratio for the variety will give an indication of varietal purity of the grain sample. A significant deviation means that the sample is impure - that is, it is either a different variety or a mixture of varieties.

- Obtain a random sample from the seed batch.
- Collect 20 grains at random from this sample of seed
- Use a Vernier caliper or photographic enlarger to measure the dimensions of each grain.

### 1000 grain weight

Each variety has a published weight for 1000 grains. If the 1000-grain weight calculated from the sample departs from this, it may be an indication that the sample contains a mixture of varieties.

- Select a random sample from the seed batch
- Count 1,000 whole grains from the sample.
- Weigh the 1,000 grains.

Scale (Length, mm)
Extra long (more than 7.5)
Long (6.6 to 7.5))
Medium (5.51 to 6.6)
Short (5.5 or less)

Scale	Shape	Length-width ratio
1	Slender	3.0
3	Medium	2.1 - 3.0
5	Bold	1.1 - 2.0
9	Round	Less than 1.1

### Number of red grains

A grain is considered "red" if more than 25% of its surface area is red-coloured or streaked.

- Select a random sample of the milled rice. 25 g is a good sample size.
- Weigh the sample.
- Select and separate the red grains from the sample. The red kernels are those that have 25% or more of the grain coloured red.
- Weigh the red grains separated from the sample.
- Calculate the percentage of red grains in the sample.