

Rice Milling

1. Rice Milling

- De-hulling is removing of husks to get brown rice, Milling is the process of removing bran and polishing is the process of getting white grains.
- Milling of paddy rice in Kenya is done by small-scale millers (village mills) and commercial rice millers.

2. Village Milling

- This is small-scale milling and is of two types:
 - (a) Hand milling uses pestle and mortar to remove the husks and bran.
 - (b) Single-machine (one-stage) mills are powered by electric motors, diesel engines or tractors.
- Village milling is mostly for family consumption.

Fig 1. One-stage village mill



Fig 2. Commercial rice milling
Source: Lusike Wasilwa

3. Commercial Rice Milling

- This is large scale rice milling and processing for sale.
- The milling process has 3 stages: cleaning, dehulling, and milling.

3.1 Cleaning

The basic equipment include:

- Magnet – removes metals.
- De-stoner – removes stones.
- Milling separator /colour sorter – removes impurities by sieving, aspiration and colour detector by laser beam.

3.2 Dehulling

- This is done by machines called hullers or dehullers, which remove hulls from paddy, to produce brown rice.

3.3 Milling

- During milling, the bran of brown rice is removed by machines called pearlers, to produce unpolished mill rice.
- The brown rice is polished (removal of aleurone layer, adhering particles, and germ) to produce white rice.
- The polished rice is sorted according to size (small broken, large broken and whole grain).
- The rice is blended as per the Kenya Bureau of Standards (KEBS) specifications to attain grades (Table 1) and packaged.

Table 1. Grades for milled rice in Kenya

	Head Rice, % (Min)	Broken Rice, % (Max)
Grade I	85	15
Grade II	75	25
Grade III	65	35

Processing should aim at avoiding breakage of rice grains.

4. Improving the output of the rice mill

Output of the mill is the ratio of milled rice produced to paddy input. Critical factors that control output include:

- Moisture content: should be 13-14%.
- Purity: impurities reduce milling recovery and quality.
- Cracked grain: these break easily during milling, thus reducing milling quality.
- Immature grain: the husk content of immature grain can be as high as 40%.

5. Milling by-products

By product	Utilisation
Broken rice	<ul style="list-style-type: none"> • Consumed as human food • Used as poultry feed
Bran	Ingredient in cattle, poultry & fish feed
Husk	Used for making briquettes as source of fuel