

**. EFFECT OF GRAIN PHYSICAL PROPERTIES ON MILLING
QUALITY OF FOUR RECOMMENDED RICE VARIETIES IN
BATTICALOA DISTRICT**

BY

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ABSTRACT

A research was conducted in the Eastern University of Sri Lanka to investigate the effect of physical properties on milling quality of rice varieties.

Rice is the single most important crop occupying 34 percent (0.77 /million ha) of the total cultivated area in Sri Lanka. On average 560,000 ha are cultivated during maha and 310,000 ha during yala making the average annual extent sown with rice to about 870,000 ha. Island wide About 1.8 million farm families are engaged in paddy cultivation island-wide. Sri Lanka currently produces 2.7 million tonnes of rough rice annually and satisfies around 95 percent of the domestic requirement. Rice provides 45% total calorie and 40% total protein requirement of an average Sri Lankan. The per capita consumption of rice fluctuates around 100 kg per year depending on the price of rice, bread and wheat flour.

The physical properties of paddy play an important role in the design of rice processing equipment. These properties may vary from variety to variety. Physical properties of rough rice are essential for rice breeders as a guide in their work of developing new varieties of desirable size and shape. The market value of paddy depends on the milling quality and grade.

In these experiments four recommended and widely cultivated paddy varieties in Batticaloa district were considered for the experiments. Among these varieties, BG 94-1,

BG 300 and LD 356 were obtained from Agrarian Services Centre, Vantharumoolai and BG 353 rice variety was obtained from Agronomy farm, EUSL.

The physical properties of grains that were studied are Moisture content, Length (L), Breadth (B), L/B ratio, Husk content, Bulk density, True density and Porosity.

Significant varietal influence on total milling yield and head rice yield was observed among the tested varieties. Total milling yield varied from 73.44% of variety BG 300 to 56.60% of variety BG 353 whereas, the head rice yield ranged from 46.55% of variety LD 356 to 30.31% of variety BG 353.

Statistical analysis was conducted to correlate the physical properties with milling quality. The result showed that the paddy moisture content, length, l/b ratio and husk content were negatively correlated with the total milling yield. However, the head rice yield was highly influence by length, l/b ratio and husk content. LD 356 medium variety gave 46.55% of head rice yield while BG 353 Extra long slender variety gave 30.31%. Statistical model was developed to estimate the total milling yield and head rice yield of paddy.

Among the measured physical properties, length of rice shows highest correlation with milling yield. Therefore physical properties of rice affects on milling yield either Head rice yield or Total rice yield.

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