Evaluation of Rice Grain Quality under Low Moisture and Normal Irrigated Conditions

A.M.A.M. Hansika[1], B.M.K. Senarathne[2] and L.M.H.R. Alwis[1]

[1]*Department of Export Agriculture, Uva Wellassa University, Badulla, Sri Lanka*
[2]*Rice Research and Development Institute, Bathalagoda, Sri Lanka*

Rice grain quality is a combination of varietal characters and environmental conditions. Water is one of the dominant environmental factors affecting final grain quality. Due to climate change, rainfall patterns are changed and no adequate water supplies for crop production which may affect on quality of rice grain. This study was conducted to evaluate the grain quality of selected three rice varieties under low moisture and normal irrigated conditions. Milling performance, physical, cooking and nutritional characteristics of three selected rice varieties; Bg300, Bg14-2448 and Bg304 were measured under both conditions. Results indicated that moisture and carbohydrate contents were not significantly different. Head rice yield, length width ratio, 1000 grains weight, elongation ratio, fiber and protein contents of Bg300 variety were significantly different under both normal irrigated and low moisture conditions. In Bg14-2448 variety, head rice yield and elongation ratio were significantly lower under both normal irrigated and low moisture conditions. Bg14-2448 under normal irrigation resulted highest head rice yield (72.9 g). Bg300 under normal irrigation gave the highest weight of 1000 grains (28.2 g) and high fiber content (3.52%). Bg304 under normal irrigation resulted high protein content (8.66%). Bg300, Bg14-2448 and Bg304 varieties under low moisture condition showed high mean values for elongation ratio compared to normal irrigated condition. There is a decreasing effect of head rice yield, length width ratio, 1000 grains weight, and fiber content from normal irrigated condition to low moisture condition in all tested Bg300, Bg14-2448 and Bg304 rice varieties.

Keywords: Grain quality, Head rice yield, Low moisture, Normal irrigation, Rice varieties