Assessment of Yield Trends of Major Rice Varieties in Different Locations in Sri Lanka

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Grain yield of rice in Sri Lanka has increased from 1.5 t ha^{-1} in the 1950s to 4.3 t ha^{-1} in 2010, and this is mainly due to the improved management and genetic makeup of the rice crop. Despite this increase, the rate of increase in productivity has declined or almost plateaued in recent years. It is not yet clear whether the improved management over the years has significantly affected on improving grain yield of rice. In order to test this, data collected from one rice variety grown continuously over the years in one location is needed. Therefore, this study was conducted to test the effect of improved management on improving grain yield of rice in Sri Lanka. Data were collected from the check/standard varieties (i.e. Bg300, Bg352, Bg358 and At362) used in the National Coordinated Rice Varietal Trials (NCRVT) available at the Rice Research and Development Institute (RRDI) at Batalagoda, Sri Lanka. Data on yield, planting date, harvesting date and weather for crop duration were recorded from 1998 to 2020 for both *Yala* and *Maha* seasons. Results revealed that the productivity has not changed over the years in most of the locations, seasons, or varieties, with few exceptions, i.e. over the years, productivity has decreased in Ambalanota and Sammanthurai, increased in Girandurukotte, Bentota, and Labuduwa, and shown both changes in Bombuwala. The average seasonal maximum temperature, average seasonal temperature difference, and total seasonal rainfall were found to have significant positive correlations with crop productivity. In contrast, the average seasonal minimum temperature had a negative correlation with crop productivity. Results of this study indicate that the crop management practices adopted with time have not affected to improve rice crop productivity. Therefore, it is necessary understand promising crop management practices to improve crop productivity and break the yield stagnation in rice.

Keywords: Productivity, Rainfall, Temperature

Crop data were obtained from the Rice Research and Development Institute, Batalagoda, and weather data from the Natural Resources Management Centre of the Department of Agriculture

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