

Comparison of Growth and Yield Traits of Six Selected Rice Varieties in Shade Net-House Conditions

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Abstract

Tropical rice varieties require high light intensities to achieve their potential grain yield. However, in the Sri Lankan context, there is a limited amount of research focusing on the effects of light on commercial rice varieties. The main objectives of the experiment were to investigate the effect of varieties on the growth and yield attributes of six rice varieties under 50% shaded conditions. A pot experiment was conducted in a plant shade (50%) house to evaluate the growth and yield performance of elite rice cultivars, namely, Bg360, Bg310, Bg403, Bg379/2, Bw367. According to the results, the maximum plant height was observed in Bw367 at the 13th week after planting (77.5cm), surpassing AT362 (70.4cm), while Bg360 recorded the lowest (58.3cm). The flowering days were substantially delayed in the control variety AT362 (83 days) and further delayed in Bg379/2 (109.7 days). The highest number of tillers were produced in Bg360 (8.6/plant) compared to AT362 (7.5/plant), while Bw367 recorded the lowest number of tillers (6.3). Furthermore, the highest number of panicles per plant was produced in Bg379/2 (4.4) compared to AT362 (3.9), with Bg310 having the lowest mean value (3.2). Bw367 recorded the highest grains per panicle (192.8), while AT362 recorded (107.2), and Bg360 recorded the lowest (83.0) respectively. The highest panicle fresh and dry weight was recorded in Bw367 (3.66g, 1.28g respectively) compared to AT362 (2.54g, 0.67g respectively), while the lowest was in Bg360 (2.12g, 0.54g respectively). Therefore, the results indicate that commercial rice varieties grown under shade conditions perform sub-optimally, and farmers need to consider the light requirements of plants before selecting varieties

Keywords: Biomass, Growth traits, Rice variety, Shade-net house, Yield Traits