Effect of Air Temperature on Spikelet Opening Duration of the Panicle and Grain Filling Characteristics of Rice (*Oryza sativa* L)

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Abstract

Effect of air temperature on duration of spikelet opening and rate of grain filling of five rice varieties; At307, Bg300, Bg305, Bg358 and Bg359 of different seed sizes were studied at Rice Research and Development Institute (RRDI), Batalagoda. Spikelet opening duration was lowest in Bg300 and higher in Bg358 and Bg359. Mean thermal time requirement (GDD) from spikelet opening to completion of anthesis of a panicle was significantly higher in Bg358 and Bg359 than At307, Bg300 and Bg305. At307 recorded the highest GDD to mature from heading. Bg300, At307 and Bg305 showed higher initial grain filling rate than Bg358 and Bg359. Individual panicles of Bg300, At307 and Bg305 completed grain filling in a shorter duration than other varieties. If an adverse climatic condition which occurs within shorter period, the probability of spikelet fertilization of the whole panicle of Bg300, At307 and Bg305 is much lower than Bg358 and Bg359. Varieties having higher grain filling rate require better environmental conditions during that period than varieties with longer grain filling period. Thus, Bg358 and Bg359 are more adaptable to sudden changes in adverse environmental conditions than that of Bg300, Bg305 and At307.

Keywords: anthesis duration, grain filling rate, maturity duration