

DII 08 Effect of photoperiod on flowering time and attributed traits of selected Sri Lankan rice varieties

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Photoperiod is a key environmental signal that determines flowering time in rice. Sri Lankan traditional rice varieties show a wide variation in flowering time. We investigate the effect of photoperiod on flowering time and attributed traits in selected Sri Lankan rice varieties. Three rice varieties: *Deveraddili* (accession no. 3407), *KohuMawee* (4278) and *Sulai* (6346) were tested with a known photoperiod insensitive improved variety, *Bg 250* in three photoperiod controllable chambers: 11 hours of light (short-day), 12 hours of light (day-neutral) and 13 hours of light (long-day). Days to flowering, tiller number, plant height at flowering and hundred grain weight were recorded in each photoperiod: Average days to flowering (ADF±SD) were significantly ($p>0.05$) affected by photoperiod: *Sulai*, *KohuMawee* and *Deveraddili* flowered early under short day condition in 76 ± 5.5 , 100 ± 1.5 and 113 ± 6.0 days respectively. Only *Bg 250* showed no response to short day and day neutral photoperiods, while long day condition significantly delayed ADF. *KohuMawee* and *Deveraddili* did not flower under long day condition during this period of 7 months. Traditional rice showed early flowering under short day condition, while long day condition delayed flowering in all varieties. Long day condition significantly increased the tiller number. The highest tiller number was observed in *Deveraddili* with average of 17 ± 2 tillers per plant. *Sulai* and *Bg 250* also showed significantly ($p>0.05$) high tiller numbers in long days. Plant heights were not significantly different among varieties in all the photoperiods. A significant negative effect was observed in 100 grain weight under long day condition. Increased tiller number and prolonged vegetative growth period may have depleted the resources for yield. Effect of photoperiod on flowering time and attributed traits indicates the need for molecular analysis of responsive genetic factors in Sri Lankan rice.

Keywords: flowering time, photoperiod, Sri Lankan rice.

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