

EFFECT OF NITROGEN LEVEL AND PLANTING DENSITY ON DRY MATTER REMOBILIZATION OF RICE

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A field experiment was conducted to study the dry matter remobilization and nutrient uptake of transplanted rice (Bg374, Bg359, Bg358 and At373) in response to plant density and nitrogen level (Urea) [100 hills m⁻² + 225 kg ha⁻¹ (T1) (Control), 75 hills m⁻² + 112.5 kg ha⁻¹ (T2), 75 hills m⁻² + 225 kg ha⁻¹ (T4), 200 hills m⁻² + 112.5 kg ha⁻¹ (T3), 200 hills m⁻² + 225 kg ha⁻¹ (T5)] at the Rice Research and Development Institute in *Yala* season 2022. The highest harvest index (HI) was obtained from the T4 which was 0.563. Compared to the control (0.552), T4 increased HI by 2.08%. However, the lowest HI of 0.51 was observed from T5. Higher dry matter production, dry matter partitioning to shoot of plant and nitrogen uptake were recorded in the T4 than the rest. The nitrogen level and plant density also significantly influenced the leaf area index (LAI) and the interception of photosynthetically active radiation (IPAR). The highest IPAR (663.37 W m⁻²) and highest canopy closure (94.68%) were observed in T4. T4 showed increased LAI values in Bg374, Bg359, Bg358 and At373 by 0.76, 1.08, 3.45 and 0.77, respectively when compared to the control. The highest LAI value of 8.5 resulted in Bg374 in T4. Higher LAI contributed to a high chlorophyll level and in T4, SPAD was highest as 43.02 in Bg358. The highest grain yield of 7.66 t ha⁻¹ was received from T4 and among tested varieties, the highest yield of 7.6 t ha⁻¹ was received from Bg358. Compared to the control (7.09 t ha⁻¹), the average increasing rate in the grain yield in treatment 4 was 8.03%. T4 was the best among the treatments and it was significantly increased the HI.

Keywords: Canopy closure, Harvest index, Leaf area index, Yield