

Determination of the Relationship between Variety and the Main Stem Leaf Number at Panicle Initiation in Main Cultivated Rice Varieties in Sri Lanka

D. B. H. Ambanwala¹, S. N. Jayawardena² and L. M. H. R. Alwis¹

¹Uva Wellassa University, Sri Lanka

²Rice Research and Development Institute, Batalagoda, Ibbagamuwa

Panicle Initiation (PI) is a key developmental stage in rice (*Oryza sativa* L.) as at this stage plant switches from vegetative to reproductive development and source-sink relation changes to allocate part of the photo assimilates for growing spikelets and kernels. Morphological indicators for PI that are easily identifiable with non-destructive methods as counting leaves on the main culm is the best way to provide a physiologically meaningful age of rice plant. This study was conducted to determine the relationship between variety and main stem leaf number at panicle initiation and to find final leaf number (FLN) in important rice varieties in Sri Lanka. Twenty three rice varieties were used in this experiment. Panicle initiation was identified by sampling five plants from each variety on daily basis. When 50% of the plants were at Pi stage, the main stem leaf number was counted in ten plants per variety. The main stem FLN was counted in these ten plants when the collar of the flag leaf was visible.

The analysis reveals that, there is a significant relationship between the variety and the mean leaf number in main culm (MLN) at PI at $P=0.0001$. And the mean leaf number at PI was highly depended on the variety $r^2=99.60\%$ shows that. Accordingly, twenty three varieties were divided in to twelve groups according to MLN at PI stage, which can be used to recommend second top dressing for rice as the morphological indicator. Those are 9.2 MLN for varieties Bg250, At303 and Bg305, 9.4 MLN for varieties CMS4a, At307 and Bg353, 10 MLN for variety 4B, 10.4 MLN for variety HR8, 10.5 MLN for varieties Bg356, Bg300, Bg94-land Bg352, 10.8 MLN for variety Bg359, 11 MLN for varieties At362 and Bg366, 11.4 MLN for varieties 3R and Bg360, 11.7 MLN for varieties Bg357 and Bg358, 12 MLN for varieties CMS1B and Bg403, 12.2 MLN for variety Bg379-2 and 12.9 MLN for variety CMS1A.

Key words: *Oryza sativa* L., Panicle initiation, Final leaf number, Flag leaf, Mean leaf number