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Fluorescence, electron transport from Photo System II and red-light absorbance-transmittance measures on the E1 and T4 leaves of eight maize hybridsNav Raj Adhikari¹, Susmita Kafle¹, Jiban Shrestha², Lal P Amgain¹, Bishnu Bilas Adhikari¹ and Subarna Sharma¹¹Tribhuvan University-Institute of Agriculture and Animal Science, Nepal²Nepal Agricultural Research Council, Nepal

We examined Red light Absorbance-Transmittance (RAT) and chlorophyll fluorescence (Fo, Fm, Fm-Fo), electron transport from PS II (Fv/Fm, Fv/Fo) of eight maize hybrids. For it, we conducted an experiment of randomized complete block design of three replications planting seeds on Dec 1, 2017 at farmers' field at Fulbari-Chitwan, Nepal. We took one hundred observations of RAT measures (using SPAD 502 plus, Spectrum, USA) from T4 leaf in 3 day period from 69th day during early vegetative stage and Fo, Fm, Fv (=Fm-Fo), Fv/Fm and Fv/Fo from e1 leaf from each of six sampled plants in each of 24 plots from 141 to 148th day during late grain filling (using chlorophyll fluorometer (OS30p+, Opti-Sciences, USA). After analysis of the frequency distributions of the measures and their mean comparisons, we found no significant difference among the single reading, 3 and 100 readings averages of the measures. Besides, we can conclude that a single reading from sample plants from the e1 leaf of six plants in each plot is enough to examine the traits from the equipments, but we must eliminate outliers while taking observations from the equipments if we are just examining averages of maize crop genotypes in the leaf. We could not find special peculiarities in the frequency distribution of the variety of the measures for high grain yielding hybrids although we found different types of frequency distribution pattern for different hybrids based on skewness. Three significantly differing highest grain yielding hybrids are Bioseed, Gangakaveri, and Shresta and their corresponding grain yields are 16, 14 and 12 t ha⁻¹.

Biography

Nav Raj Adhikari is a Professor at Institute of Agriculture and Animal Science (IAAS), Tribhuvan University (TU), Nepal. He has worked on triticales genome engineering in his MS thesis work from Tottori University, Japan. In his PhD dissertation research work, he worked in flowering and photosynthetic model formulation in maize (Adhikari NR, Ghimire SK, Sah SK, Koirala KB. (2015). He is interested in evaluation of genotypes of major crops through light reaction of photosynthesis.

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