



EVALUATION OF DIFFERENT SENSING APPROACHES CONCERNING TO NONDESTRUCTIVE ESTIMATION OF LEAF AREA INDEX (LAI) FOR WINTER WHEAT

H. Tavakoli¹, S.S. Mohtasebi^{1*}, R. Alimardani¹, R. Gebbers²

¹Department of Agricultural Machinery Engineering, Faculty of Agricultural Engineering & Technology, University of Tehran, P.O. Box 4111, Karaj 31587-77871, Iran

²Leibniz-Institute for Agricultural Engineering, Max-Eyth-Allee 100, 14469 Potsdam, Germany

Corresponding author's E-mail: Mohtaseb@ut.ac.ir

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Abstract- Different approaches of non-destructive estimation of the LAI in winter wheat were compared. Plant height had weak relation with the LAI, while estimated biomass showed high logarithmic relationship ($R^2=0.839$). NDRE and REIP were logarithmically well related to the LAI ($R^2=0.726$ and 0.779 respectively). Saturation effect of NDRE and REIP was less than NDVI. Some RGB-based indices also showed good potential to estimate the LAI. Among the indices, Gm, GMB, RMB, and NRMB were better related to the LAI. The results indicated that digital cameras can be used as an affordable and simple approach for assessment of the LAI of crops.

Index terms: Leaf area index (LAI), plant height, vegetation indices, digital camera, precision agriculture