

**UTILIZATION OF SENTINEL-2 SATELLITE IMAGERY FOR
ESTIMATION OF ORGANIC MATERIAL AND SOIL TOTAL
NITROGEN IN IRRIGATION RICE AT KAPANEWON BERBAH,
SLEMAN DISTRICT, YOGYAKARTA SPECIAL REGION PROVINCE**

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ABSTRACT

Information on the distribution of soil organic matter and soil total nitrogen in a large area can be done quickly by utilizing satellite imagery based on NDVI (Normalized Different Vegetation Index) values. This study aims to map the content of soil organic matter and soil total nitrogen with the NDVI value approach method based on Sentinel-2 satellite image interpretation. This research was conducted in irrigated paddy fields in Kapanewon Berbah, Sleman Regency, Yogyakarta Special Region Province. Determination of point locations and the number of samples based on NDVI classification and then laboratory analysis for the determination of soil organic matter and soil total nitrogen. Then the laboratory results were correlated with NDVI values. The results showed that NDVI was strongly correlated with soil organic matter ($r = 0,637$) and NDVI values had an effect of $R^2 = 0,4061$ with a regression equation $y = 0,8 + 3,1399x$. NDVI values is moderately correlated with soil total nitrogen ($r = 0,479$) and NDVI values gave an effect of $R^2 = 0,229$ with the equation $y = 0,0947 + 0,1171x$. The results of the t-test predictive value of organic matter with soil organic matter validation values showed no significant difference, meaning that the regression equation can be used. While the t-test predictive value of N-total with validation value of N-total soil showed significantly different, meaning that the regression equation cannot be used to predict the N-total soil in Kapanewon Berbah, Sleman.

Keywords: NDVI, Sentinel-2, Soil Organic Matter, Soil Total Nitrogen, regression