

## ABSTRACT

*The magnetic field induction method is one of the non-destructive test procedures utilized in this study to assess the levels of nutrients in the soil by measuring the voltage response after adding variations in the mass and concentration of nitrogen, phosphorous, and potassium fertilizer solutions. Measurements were made with a transmitter coil pair of 235 turns and a receiver coil pair of 290 turns, both situated 0.5 cm above the test object in the form of laterite soil, humus soil, and volcanic soil, with a working frequency of 800 kHz and an amplitude of 20Vpp. The addition of nutrient levels with variations in concentration in humus soils is formulated in three linear equations, with two data collections, with the first measurement's average error value of 6.22 % and the second measurement's average error value of 6.41 %. Changes in the value of the voltage response with the addition of nutrient levels with mass variations are formulated in nine linear equations, with three times the average error data obtained in the first measurement is 48.63 %, the second measurement is 18.27 %, and the third measurement is 9.05 %. The amount of the error value in the first measurement also indicates that the coil can only detect roughly 20% of the minimum nutrients in the soil in this measurement. It is clear that the bigger the shift in the voltage value measured on the receiver coil, the higher the nutritional content of the soil.*

***Keywords: Magnetic Field Induction Method, Nutrient NPK, Soil, GGL Response***