

**STUDY OF SOME CHEMICAL PROPERTIES OF RED YELLOW
PODZOLIC SOIL ON OIL PALM PLANTATION LANDS OF
DIFFERENT AGES IN SEI DAUN, TORGAMBA DISTRICT,
LABUHANBATU SELATAN DISTRICT, NORTH SUMATRA**

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ABSTRACT

Red and yellow podzolic soil is generally sour and has poor chemical properties and requires costs to repair, so plants that are tolerant are needed to use red and yellow podzolic land and one of them is oil palm. This research was conducted to determine the chemical properties of the red and yellow podzolic soil on the Sei Daun oil palm plantation and to determine the effect of differences in the age of the oil palm on the chemical properties of the Sei Daun plantation soil. The research was conducted in December 2022, using the method survey to determine location and methods purposive sampling according to the age of the plant to determine the point for taking soil samples. Samples were taken from 5 lands, namely land without oil palm plants, aged 8 years, 14 years, 16 years and 25 years, then 5 points were determined from each land, each point was separated into 3 different depths, namely 0-20 cm, 20- 50 cm, and 50-70 cm, then the 5 points will be composited according to depth to produce 3 samples per field. The results of the analysis of soil chemical properties in all research areas show that as the age of the oil palm increases, the pH (H₂O) soil declines where at age 8 years 5.73, 14 years 5.08, 16 years 5.12, 25 years 4.74; P-Available land (ppm) decreased where at age 8 years 22.37, 14 years 13.95, 16 years 12.57, 25 years 10.28; N-Total soil (%) decreased where at age 8 years 0.06, 14 years 0.05, 16 years 0.04, 25 years 0.03; K-can be exchanged for land (me/100g) decreases where at age 8 years 0.33, 14 years 0.14, 16 years 0.07, 25 years 0.07; C-Organic soil (%) increased where at the age of 8 years 0.71, 14 years 0.94, 16 years 1.07, 25 years 2.27; Soil CEC (me/100g) decreased where at age 8 years 3.16, 14 years 2.46, 16 years 2.43, 25 years 1.72; Fe-NH₄OAC (ppm) increased at the age of 8 years 10, 14 years 24.33, 16 years 32, 25 years 44; Mn-NH₄OAC (ppm) increases where at age 8 years 0.66, 14 years 0.8, 16 years 1, 25 years 1.33; Al-can be exchanged for land (me/100g) increases where at age 8 years 0.1, 14 years 0.52, 16 years 0.82, 25 years 1.56. Sei Daun oil palm plantation land is acid soil which has a low soil pH so it has poor chemical properties. Increasing the age of oil palms can reduce soil pH thereby reducing the availability of nutrients so that fertilizer doses can be adjusted according to plant age because the older they are, the more nutrients the plants absorb.

Keywords: oil palm, soil chemical properties, red yellow podzolic.