

ABSTRACT

Soil is an important natural resource for human life. The management of soil might change *its* function on supporting the life. One of the functions of the soil is the media of plant to grow. The successful of plant production depends on the physical and chemical nature of the soil, which is quantitatively expressed by soil fertility level and soil productivity level. The aim of this research is to know the fertility level and to know the soil productivity level on paddy field with plant rotation pattern difference in Sewon sub-district, Bantul Regency.

This research is done using area purposive sampling method, which is based on the area of specific land unit, and the consideration of plant rotation pattern i.e. paddy-paddy-*palawija* continuously, and paddy-paddy-*palawija* combine with sugar cane. The data used in this research are: effective depth, soil texture, soil permeability, Cation Exchange Capacity, alkali saturation, P_2O_5 potential, K_2O potential, organic matter, soil moisture, drainage, salinity, and dissolved material. Those data then analyzed using scoring analysis approach. The results of the scoring are soil fertility level and soil productivity level of each land unit.

The result of the research shows that the soil fertility level in Sewon Sub district, Bantul Regency has two levels i.e. a high level on land unit 52 (*Typics Fragiaquepts* for sugar cane), whereas the other land unit has a low level of soil fertility (53, 62, 63, 72, and 73). The level of soil fertility resulting 3 levels, i.e. moderate for land unit 63 and 72, poor for land unit 53, 62, and 73, and very poor for land unit 52.

The conclusion of this research is: the plant rotation pattern is not affecting to the soil fertility, physically nor chemically, whereas based on its soil productivity. The low of the soil fertility and productivity caused of lower pH, so influent to the other elements reform.