

## Characterization, Classification and Fertility Capability Classification of Three Rice Zones of Ebonyi State, Southeastern Nigeria

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**Abstract :** Soil characterization and classification provide the basic information necessary to create a functional evaluation and soil classification schemes. Fertility capability classification (FCC) on the other hand is a technical system that groups the soils according to kinds of problems they present for management of soil physical and chemical properties. This research was carried out in Ebonyi state, southeastern Nigeria, which is an agrarian state and a leading rice producing part of southeastern Nigeria. In order to maximize the soil and enhance the productivity of rice in Ebonyi soils, soil classification, and fertility classification information need to be supplied. The state was grouped into three locations according to their agricultural zones namely; Ebonyi north, Ebonyi central and Ebonyi south representing Abakaliki, Ikwo and Ivo locations respectively. Major rice growing areas of the soils were located and two profile pits were sunk in each of the studied zones from which soils were characterized, classified and fertility capability classification (FCC) developed. Soil classification was done using United State Department of Agriculture (USDA) Soil Taxonomy and correlated with World Reference Base for soil resources. Results obtained classified Abakaliki 1 and Abakaliki 2 as Typic Fluvaquents (Ochric Fluvisols). Ikwo 1 was classified as Vertic Eutrudepts (Eutric Vertisols) while Ikwo 2 was classified as Typic Eutrudepts (Eutric Cambisols). Ivo 1 and Ivo 2 were both classified as Aquic Eutrudepts (Gleyic Leptosols). Fertility capability classification (FCC) revealed that all studied soils had mostly loamy topsoils and subsoils except Ikwo 1 with clayey topsoil. Limitations encountered in the studied soils include; dryness (d), low ECEC (e), low nutrient capital reserve (k) and water logging/ anaerobic condition (gley). Thus, FCC classifications were Ldek for Abakaliki 1 and 2, Ckv for Ikwo 1, LCk for Ikwo 2 while Ivo 1 and 2 were Legk and Lgk respectively.

**Keywords :** soil classification, soil fertility, limitations, modifiers, Southeastern Nigeria

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