

**Nitrogen Nutrition of White Yam (*Dioscorea rotundata* Poir) Grown in Two Selected Locations of Southwestern Nigeria.**

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## **Abstract:**

Soil physical and chemical evaluation was carried out in five selected locations of southern Nigeria viz: Ile-Ife in Oyo State, Ado Ekiti in undoo State, Asaba in Bendel State, Abakaliki in Anambra State and Ogoja in Cross River State that are known to support the production of white yam (*Dioscorea rotundata* Poir). Of these five locations, Ile-Ife and Ogoja were selected for field experiments. Four rates of nitrogen (0, 40, 80 and 120 kg N/ha) as ammonium sulphate [(NH<sub>4</sub>)<sub>2</sub>SO<sub>4</sub>] were applied to yams grown on ridges for three seasons.

Soil physical and chemical investigations revealed that the inherent fertility of the soils which the farmers rely on for yams yield cannot provide sustained productivity. Ammonium sulphate fertilizer at 120 kg N/ha proved adequate for sustaining increased tuber yield of yams at Ile-Ife and Ogoja locations. The fact that the yams were collected in Ile-Ife and planted in Ile-Ife (forest zone) and Ogoja (Savanna zone) did not have any adverse effect on tuber yield and tuber quality in terms of crude protein, starch and glucose contents. These nutrient classes increased proportionately as the N- level increased.

High accumulation of mineral nutrients in both the yam flour and the peels were observed for yams grown at Ile-Ife and Ogoja locations. Chemical analysis of the yam flour indicates that with judicious use of N- fertilizer, the nutritional value of the yam flour and peels could be substantially increased in the white yam. It was observed that increasing level of (NH<sub>4</sub>)<sub>2</sub>SO<sub>4</sub> resulted in reduction in soil pH from 6.7 to 5.3 and P from 11.6 to 4.5 ppm in Ogoja whereas it was less felt in Ife. Soil pH was reduced from 6.4 to 6.1 and P from 12.6 to 6.5 ppm in Ife. Statistical analysis showed N- from ammonium sulphate fertilizer highly correlated with yield, protein, starch and glucose.

**Keywords:** soil evaluation/ white yam/ fertility/ mineral nutrients

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