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Soil Physical and Chemical Properties Suitable for Yam (Dioscorea rotundata) Production in Southeastern Nigeria

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ABSTRACT

For optimum yam (D. rotundata) production, both the physical and chemical conductions of soils must be maintained at favorable levels. A study of soil profiles was carried out at three locations, Anam (derived from Alluvium), Abakaliki (underlain by shale), and Umudike (formed from sandstones), to quantify the soil physical and chemical properties suitable for yam production. Anam and Abakaliki are well known for extensive cultivation of yam as a food and cash crop. Umudike is not particularly a yam-growing area but was included as a check. The average yam yields at Anam, Abakaliki, and Umudike were 46.4, 44.6, and 8.8 t/ha, respectively.

Samples from the soil profiles were examined for particle size distribution, bulk density (Bd), particle density, total porosity (Tp), CEC, exchangeable Ca, Mg, and K. Other determinations included organic carbon, total N, and available P. It was found that Anam and Abakaliki soils were fine textured, while Umudike soils were light textured, mainly in the top horizons. The results suggest that the Bd and Tp conducive to yam production lie within 1.10 to 1.36 g/cc and 46% to 56%, respectively. Chemically, the CEC should exceed 18.0 me/100 g and the level of saturation above 25%. Exchangeable K and Mg levels, particularly, should not fall below 0.3 and 2.0 me/100 g.

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Guinea Negro: A High Yielding Out of Season Yam Cultivar

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ABSTRACT

Guinea Negro is a yam cultivar introduced from Jamaica. It belongs to the same genus and species as Habanero (Dioscorea rotundata). After various experiments it was found to be high yielding and as to dormancy has a different behavior than Habanero. It can be planted out of season and very high yields are obtained. When planted in October and harvested at 7 May, 8 June, and 9 July during the summer months, yields of 400, 447 and 473 cwt/acre were obtained.

Combining both cultivars, that is, planting Habanero in its regular season, and Guinea Negro, out of season, we are able to have yams in the market all year around.