PDF - INVESTIGATION INTO YIELD REDUCTION OF SUGARCANE PLANTATION OF THE SAVANNAH SUGAR COMPANY - researchcub.info**ABSTRACT**
This study was undertaken to identify the factors responsible for declining of sugarcane production in Savannah Sugar Company (Dangote Group). Soil samples were collected from the field within the irrigated plots P1, G2 and K2. The pH and EC were determined using the pH meter and EC meter, respectively while Ca,Mg and OM were determined using titration methods. Na and K were determined by flame photometry method. The results of the analysis showed that the range of pH values were from 5.56-7.6, indicating the soil pH from slightly acidic to slightly alkaline. The pH values obtained by Kenting Africa Resource Service Division LTD (1975) from a depth of 0-60cm range from 5.2-7.6 which also showed that the soil was slightly acidic to slightly alkaline. The average mean value of EC was 0.45-0.81 dS/m indicating low concentration of soluble salts. The Exchangeable Sodium Percentage (ESP) of the soil on the average ranged between 0.028-0.029 (2.8-2.9%) which was below the threshold of 15% (Mohsen et.al, 2009).These indicate that the soil is low in salinity and sodicity.
The study reveals that, the reason for the decline in sugarcane production was not soil quality, but rather due to two factors deduced from the checklist administered during the study. The factors are categorized into two; Technical and Managerial Factors. These were importation of environmentally non-compactible seedlings, over ageing of the sugarcane, worn-out and obsolete equipment and inadequate workforce.

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background of the Study

Brady and Weil (1999) defined soil quality as the capacity of a specific soil to function, within natural or managed ecosystem boundaries, to sustain plant and animal productivity, maintain or enhance water and air quality, and support human health and habitation. Thus, soil quality assessment reflects biological, chemical, physical properties, and engineering processes, and their interactions within each resource unit (Karlen *et al*., 2001).

Sugarcane grown under irrigation in arid and semi-arid region is frequently adversely affected by soil salinity. The crop is moderately sensitive to salinity, with threshold for yield reduction at 1.7 dS/m (Golabi *et. al*, 2009). The Salinity in the root zone of sugarcane decreases sucrose yield, through its effect on both, biomass and juice quality (Lingle and Wiegand, 1996). The salinity of soil or irrigation water reduces sugar stalk yield by reducing both the stalk population and weight. Wiegand *et. al* (1996) found that each dS/m increase in

the root zone salinity decreases stalk population by 0.6 stalk/m2 and individual stalk weight by 0.15 kg, resulting in a stalk yield decrease of 13.7 t/ha. It has been estimated that globally, approximately 40% of land under irrigation is salt-affected (Moore, 1984; Shannon, 1984). This problem is prevalent in soils under irrigated sugarcane (*Saccharum* sp.), especially in areas of low rainfall and high evaporative demand (Haynes and Hamilton, 1999).

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