

The Place of Data Management in Food Crop Production in Nigeria

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ABSTRACT

Agriculture has been one of the major occupations in Nigeria. However, it is observed that in spite of the noble attention given to the sector, the sector has embarrassingly failed to provide adequate quantity and quality of variety of food and industrial raw materials to support the growing population. To worse it up, there is great hike in the price of essential agricultural products over the years, while all efforts ever attempted to control the hike prices have proved abortive. Meanwhile one of the major causer factors has been traced to lack of inadequate data in the field of agriculture. To this end, therefore this paper set to clarify/identify the roles of data management in food crop production in Nigeria with special reference to Ondo and Ekiti States. Both primary and secondary data were sourced which were later subjected to simple descriptive statistical analysis using percentage scores. Findings reveal that agricultural data in food crop production cannot be over emphasized. These among others include, its helps to determine the current production level by crops and arable land and thus helps determine whether or not capacity production has been recorded data on soils would assist in determining what nutrients are lacking and thus the type of and quantity of fertilizer needed to boost production. etc. Be that as it may, this paper advocates that the Federal State and Local governments as well as corporate bodies should ensure the generatiopn, analysis and dissemination of comprehensive agricultural information for the benefit of the rural agricultural population hither to data starved.

Keywords: Data management, Roles, Food crop production, Nigeria.

34th ISTEAMS European Trans-Atlantic Multidisciplinary Conference Proceedings Reference Format

Aladelokun, A.O. (2022): The Place of Data Management in Food Crop Production in Nigeria. Proceedings of the 34th European iSTEAMS Trans-Atlantic Multidisciplinary Virtual Conference, Laboratoire Jean Kuntzmann, Université Laboratoire Jean Kuntzmann, Université Grenoble, Alpes, France June, 2022. Pp 31-38 www.isteam.net/france2022.
[dx.doi.org/10.22624/AIMS/France2022P4](https://doi.org/10.22624/AIMS/France2022P4)

INTRODUCTION

The most important occupation in Nigeria in terms of labour force participation is agriculture. This is so because agriculture (i.e. crop farming, fishing and livestock farming) employs on the average about 83% of the rural population (Olayide et.al 1979). Apart from being an important mode of production, agriculture represents a life style in most agricultural communities in Nigeria. Women form a significant proportion of this agricultural pc population in Ondo and Ekiti

States while men tend to do the heavy intermittent jobs of land clearing and preparation, men and women share almost equally in planting. However, women hoe, weed, harvest, 19 transport, store, process, market much more than men do (FAO, 1986) The principal food crops grown in Ondo and Ekiti states include yams, pro cassava, cocoyam, rice maize, vegetables, plantain/banana, fruits such go as oranges, pineapple, cashew, etc. Fishing is important in the Ilaje-Ese- for Odo areas of Ondo state. Virtually all households keep some livestock pol mainly poultry, sheep, goat and pigs in free range. Tree crops such as star cocoa, kolanut, coffee, are important in Idanre, ifesowapo, Ondo, and Ifedore, Ekiti, Owo and Akoko areas.

Apart from the agricultural population (i.e. people who live from working the land, by animal husbandry and fishing) the contributions of the non- agricultural population in the two states to food production are significant since the "Operation Feed the Nation" was launched in Nigeria. Teachers, Civil Servants, traders, etc; today keep poultry and operate small farms where various food and cash crops are grown.

Statement of the Problem

In spite of the priority position enjoyed by the agricultural sector in terms of the total land resources and labour force committed to it, the agricultural sector has embarrassingly failed to provide an adequate quantity and quality of variety of food stuffs and industrial raw materials to support the growing population. Apart from rice, all other food crops recorded a negative net growth in hectarage harvested and their actual yields were less than 44 percent of their potential yields (Chianu, 1994) Although there had been some increase in total food production such an increase fell far too short of the increase in the population (FAO, 1986; Adesina & Chianu, 2002). Such tragic food crisis had been brewing for over three decades. Whereas, in the 1960's, agriculture apart from satisfying home demands, yielded over 80% of Nigeria's foreign exchange. This position has changed as the oil sector has been contributing over 80% of Nigeria's foreign exchange on the average since the 1970s to date.

The agricultural sector had since, failed to meet the ever-rising home demands for food and industrial raw material by the burgeoning population. As a remedy Nigeria had to import large quantities of food items and raw materials especially cereals in the 1970s and 1980s. In 1981 for example, total food import bill stood at N2,115.1 million (CBN 1983, 1984) representing 16.4% of total imports into Nigeria that year. Massive food importation policy was later discovered to cause more problems than solving the food deficit problem. Thus, successive governments at National, State and Local government levels have formulated and executed many agricultural and rural development policies aimed at food and raw materials sufficiency, improved material standard of living and better life for rural dwellers. Some of these policies and programmes included:

1. The National Accelerated food production programme in 1972 by General Yakuba Gowon's administration
2. The Agricultural Development Projects initiated by General Murtala Mohammed's government in 1975.
3. General Obasanjo's Operation Feed the Nation Programme of 1976.
4. Alhaji Shehu Shagari's Green Revolution Programme in 1980.

Others include Agricultural Credit Guarantee Scheme Fund; Agricultural Credit Insurance Scheme, the Directorate of Food, Road and Rural infrastructure; Back to land campaign, activities of the National Directorate of Employment, Better Life Programme, etc. These notable national, state and Local Government efforts to develop the rural areas in general and improve agriculture in particular appear not to be yielding the desired results. Today there is growing incidence of hunger among food producers themselves. This is a paradox of the worsening food situation in Nigeria. Seasonal starvation has steadily become an annual ritual for the farmers. In most homes today the eating formula of 0-1-0 or 0-0-1- or 1-0-0 or 1-0-1, etc. is in vogue. If and when a meal is eventually taken the quality is not only poor the quantity falls far too short of what is required. Thus, most children and adults are malnourished or even starved. It is the belief of this paper that Nigeria's ability to support her huge and growing population depends on her success in the agricultural sector.

Objective of the Study

The main objective of this study is to identify the role of data management in food crop production in Nigeria with special reference to Ondo and Ekiti States. Specifically, the paper will identify the factors responsible for the present-day food crisis in Nigeria and examine the ways in which management could assist in boosting food crop production.

2. METHODOLOGY

Data for the study were primarily collected from secondary sources especially published articles and conference papers on food production and agricultural statistics as well as personal observations. A Random sample survey of 320 farmers also generated some data used in the study. The data generated were subjected to simple descriptive statistical analysis using percentage scores.

Factors Responsible for the Present-Day Food Crisis

In spite of her abundant natural and human resources for food production, Nigeria suffers from serious food shortages both in quantity and quality. This paper only highlights some of the factors responsible for the low quantity and quality of agricultural products.

Reasons for Food Shortage in Nigeria

1. Rapid population growth: the population in Nigeria is growing rapidly as shown in table 1

Table 1: Records of Population Census in Nigeria

YEAR	POPULATION	DIFFENTIAL	%INCREASE
1911	15,969,300		
1921	18,624,690	2,655,390	16.63
1931	19,928,171	1,303,481	7.0
1953	31,500,000	11,571,829	58.07
1963	55,653,821	24,153,821	76.68
1973	79,769,000	24,115,179	43.33
1991	88,514,501	8,745,501	10.96

The Population by 2000AD is estimated to be over 100 million (UN: 1986). While over the decades, the population growth rate is put variedly between 2.6% and 3% per annum food production is on the average growing at a rate of 1.1%. While rate of food production has slowed down population growth has accelerated. This means that increase in food production falls short of population growth. Food production has been losing the race with population growth since 1970 and the trend has not changed. Whereas there is rapid growth of the population, farmer population has declined and are ageing. Percentage of rural population in 1960 was 86.9. By 2000 AD it is estimated to decline to 66.6% and 47% by 2085 (UN: 1986.) This dwindling agricultural labour that still rely on traditional methods has failed to meet Nigeria's food requirement.

2. **Government Policies:** A weak mix of governmental policies relating to food imports, price control taxation, marketing through government-controlled marketing boards, consumption and production incentives have done more to depress food and cash crop production than encourage it since they greatly restrict the potential income to farmers. When Nigerian market was flooded with imported, and better-quality grains at Cheaper rates in the late 70s and early 80s for instance, the prices of locally produced food stuffs went down. Therefore, farmers income and thus incentives to grow more food were drastically reduced.
3. **Low Productivity:** - Low productivity is due to poor traditional agricultural practices which involve the use of the cutlass and hoe, with little or no modern inputs such as fertilizers and chemicals; deteriorating soil fertility. etc.
4. Natural hazards such as erosion, adverse physical conditions of soil, drought, flood, pests, etc. limit crop yields per hectre and farmer.
5. Rural-urban migration of youths has resulted in shortage of farm hands. This has resulted in high farm-labour costs in the rural area. In addition, the farmers left behind are ageing and are gradually withdrawing from active farming since they cannot cope effectively with the tedious farming activities. These have caused agricultural productivity to stagnate or even decline in some areas.
6. Socio-Economic constraints limit crop yields per hectre and farmer. For instance, inappropriate land use and tenure conditions complicate Assess to farm land especially by tenant farmers. Poverty and lack of access to loan or credit facilities reduce peasant farmers chances of purchasing and using better seedlings and intermediate inputs.
7. Lack of professional and administrative skills for delivery of inputs and services do not pave way for agricultural innovations and change.
8. Poor farm management and farm organization result in loss of yields and income.
9. Commodity marketing problems which involve crop evacuation, storage and distribution, all of which combine to influence yields, production coasts and hence returns.
10. Pre-harvest and post-harvest losses account for about 40 percent of food production in Nigeria (Akinbode 1994) Pre-harvest losses occur in various forms of damage to food crops between planting stage and the stage of maturity due to unstable soil condition, harsh and unpredictable weather conditions, pests flood, fire and various forms of human hazards resulting from carelessness. Post- harvest losses occur between harvest time and the time the ultimate consumer disposes of the food crop due to harsh weather, lack of or inadequate storage facilities, fire pest, human carelessness and accidents through fire.

11. Another problem is paucity of essential information or data for planning plan execution and management of agriculture. This last factor has been responsible for the failure of most agricultural policies and programmes at the macro and micro-levels of Coulon production in Nigeria. The problem of collecting and estimating production of food crops and agricultural commodities is of great importance to Nigeria in her efforts to feed the teeming population and raise living standards.

Types and State of Agricultural Statistics in Nigeria

The agricultural sector is of vital importance to the economy of Ekiti and Ondo states in particular and to Nigeria at large. In spite of its significance, there is little or no reliable and valid quantitative information otherwise referred to as data, to formulate plans, execute, monitor and assess such plan policies aimed at increased food production. Agricultural data need to be painstakingly collected, analyzed and disseminated to increase our knowledge of the farming system. Agricultural statistics cover all activities of people engaged in the agricultural sector as well as variables involved in agricultural production.

Agricultural statistics required for planning and operational farming policies include therefore

- a) Demographic profile of the agricultural population. These include numerical size of persons who are actually in agriculture, their age-sex distribution, socio-economic status, family size and structure, etc. It is important to measure the size and extent of participation in agricultural production through their secondary activities of non-agricultural population and vice-versa.
- b) Information on physical resources of the environment. These include total land area available for cultivation, proportion currently under cultivation, acreage cultivated by crop types; soil types and characteristics; relief, vegetation, climatic data especially temperature and rainfall distribution and intensity; sunshine; water resources i.e volume and regime of rivers, underground water, etc.
- c) Economic data. These include number of economic trees, average yields and production of crop items; number of domestic livestock and poultry by kind and sex, market locations, market price for various food items in different locations, cost of inputs, of demand and supply trends, migration and labour supply, labour costs, transport costs, income, credit facilities, household Stuth consumption of food and capital items, cattle trade, slaughter figures, etc.
- d) Information on essential infrastructure: These include doing information in storage facilities and methods, transportation, palm processing facilities, health, machinery, farm inputs, farming pattern and instrumentation, etc.
- e) Information on farming calendar. At present, these agricultural data are grossly deficient in terms of quantity and quality necessary for verile agricultural policy formulation, policy execution, monitoring and control. This poor state of agricultural data is due to many factors among which are:
 - i. Population censuses that are supposed to provide data on of agricultural population have been of doubtful quality and thus unreliable in Nigeria. Like any exercise in Nigeria to date, census 25 is a purely statistical exercise, has been politicized and manipulated. The coverage is not total and responses to the questions asked not often reliable. Illiteracy, superstitions, suspicion and unwillingness on the part of the normally reticent respondents to but

- supply information compound the reliability and validity of census data in Nigeria.
- ii. Ultra censuses and surveys do not provide adequate and reliable data either due partly to problem of definition of key concepts in agriculture, such as economic activity, employment in agriculture, 929 etc. For example, how do we distinguish the main from secondary occupations of respondents who engaged in different occupations at different times of the year? Mixed cropping in stab which two or more crops are planted on the same plot complicates the computation of crop acreage. These create measurement problems.
This apart the unwillingness on the part of the farmer to divulge information makes data from censuses and surveys inadequate and unreliable. The conceptual and measurement problem must be born in when using agricultural statistics.
 - iii. Over 72 percent of the agriculture population interviewed in eight randomly selected village in the study area (four each from Ekiti and Ondo states) are illiterates. Consequently about 94% of the respondents said they do not keep records of their farm operations especially yields per hecter by crop, sales, farm labour poultry reems of birth and death by kind and sex, etc. Thus they (farmers) always resort to memory recalls in giving any agricultural statistics which at best could serve as estimates with varying degrees of accuracy.
 - iv. Agricultural statistics collected by government agencies are often treated as confidential and thus not made available to the farmers.
 - v. There is no adequate equipment to collect data. For instance, there is no well or fully equipped or functional meteorological station in Ondo and Ekiti states except perhaps that of the airport, to measure weather elements. So also, there are no well-equipped laboratories for soil tests. There are no recent geological maps. The topographical maps available are almost obsolete and do not cover all areas adequately.
 - vi. In addition, research work is relatively few and limited. All of the above contribute to the paucity and poor quality of agricultural data in the states.

3. THE PLACE OF DATA MANAGEMENT IN FOOD PRODUCTION

The role of agricultural statistics in food production cannot be over emphasized. Agricultural data is needed to determine the current production level by crops and arable land and thus help determine whether or not capacity production has been reached. Data on soils would assist in determine what nutrients are lacking and thus the type and quantity of fertilizer needed to boost production. Also, such data would assist in determining the type of crop best suited to particular soil. Lack of such knowledge by the peasant farmers has resulted in poor yields or total crop failure when farmers fail to discriminate between what type of crop to be sowed in any particular place. Climatic data is a pre-requisite for farm calendar.

Due to lack of climatic data needed for a fairly reliable weather-forecast in the states, most farmers often gamble with the crops sowed at the onset of the rains. In some years such as in 1977, 1987 and 1993 such crops failed when the rains became irregular or even ceased to come leading to heavy losses in terms of cash, energy and time expended, on training operations, etc. This was the case in 1993 in Ondo state when as at June most areas are yet to produce maize. Irrigation agriculture is virtually non-existent in Ondo and Ekiti states. Wet cropping is little practiced as most flood plains are not fully utilized. Adequate data on river flow regime, underground water potentials and the general topography are necessary in making the right choice of farming technique in a given environment that would maximize yield and reduce hazards of erosion and drought.

Most farmers in the rural areas are ignorant of the current market prices of food stuffs in the urban centers. Due to the problems of storage and easy transportation, poor or inaccessible roads and/or high transportation costs, 73.4% of the farmers interviewed evacuated their farm products by head load only to the point of nearest contact with the middlemen that grossly underprice their products. The consequence of this is that farmers' ability to exploit alternative markets is not only reduced with concomitant disincentive to produce more. Given adequate data on the demand for and market price of farm products, farmers could reach alternative markets and obtain better price for their products. This will bolster greater production. Information on the availability of essential infrastructure such as tractor services, farm inputs, etc. and their costs would go a long way in transforming the erstwhile traditional farming techniques in the rural areas and thus increase production. Lack of information on these services and their costs has tended to keep the rural farmers off in spite of farm labour scarcity and consequent soaring farm labour costs.

In their reaction to the question of how do livestock farmers take care of the sick livestock, 87.3% of the 320 farmers interviewed are ignorant of the existence of veterinary clinics and doctors for their livestock. This means that existing veterinary facilities are underutilized resulting in unnecessary loss of livestock through infestation. Records available at the veterinary clinic at Ikere municipality shows that rate of attendance is very poor. About 8% of the respondents visit veterinary clinic to treat ailing livestock. Consequently, livestock deaths that could be avoided manifest due to ignorance. Information on research findings show that improved seedlings and their outlets if made readily available to the peasant farmers can transform the present productivity level positively within the shortest possible time.

4. CONCLUSION AND RECOMMENDATIONS

The Federal, State and Local Governments have a big role to play in the generation, analyses and dissemination of reliable, valid and comprehensive agricultural information for the benefit of the rural agricultural population hitherto data starved. Adequate funds should be made available for the purchase and installation of modern measurement equipment's in strategic locations to record weather elements on regular basis. So also, is the need to establish well equipped laboratories in Research Institutes. Above all, enough personnel should be trained to collect, analyze and disseminate the results to the farmers and organizations requiring such data especially at the grassroot level. Mass mobilization of farming population via the mass and electronic media programmes, outfield extension services, etc. need to be revigourised.

The establishment of the department of statistics saddled with the generation, collation, analyzed storage and dissemination of essential agricultural data is recommended at the local government level so as to reach the grassroots.

REFERENCES

- Adesina, A. & Chianu, J. (2002). Determinants of farmers' adoption and adaptation of alley farming technology in Nigeria. *Agroforestry System*. 55(1). 99-112.
- Akinbode, A. (1994). "a research Agenda' for effective food introduction in Nigeria". In J.O Adetunberu A. Adegboye & S.G. Farnisa (eds). *Food crisis in Nigeria; Abstract of paper presented at the 37th Annual conference of the NGA, held at College of Education Ikere-Ekiti between 5th and 8th April, 1994.*
- Central Bank of Nigeria (1983). *Annual Report and Statement of Accounts for the year Ended 31st December, 1983.*
- Central Banks of Nigeria (1984) *Annual Report and Statement of Accounts for the year Ended 31st December, 1984. Economic and Financial review 24(1), 1-3.*
- Food and Agriculture Organization (1986). *Population and the Labour Force in Rural Economic. FAO Economic and Social Development, Paper 599, Rome: FAO*
- Goliber, T. J. (1985). *Sub-Saharan Africa: Population Pressures on Development Population Bulletin, 40 (1), 56 - 81.*
- Kpedekpo, A.M.C & Arya P.L. (1981). *Social and Economic Statistics for Africa, London: George Allen and Unwin.*
- Olayide, S.O., Olayemi J.K & J.A. Eweka J.A. (1979). *Perspectives in Benin-Owena River Basin Development, Ibadan, IUP*
- United Nations, (1986). *World Population Prospects: Estimates and Projections as Assessed in 1984, New York: UN*