

NATIONAL AGRICULTURAL
SAMPLE CENSUS
1993/94.

PHASE 1

NOVEMBER 1996.

PREFACE

The Federal Office of Statistics (FOS) is delighted to publish the result of the Phase 1 of the National Agricultural Sample Census (NASC) 1993/94. The office has also published State results which give agricultural indicators at the Local Government Level.

This report gives a look of the structure of agricultural activities in the country. Planners, Researchers and other users will find the data very useful. The Phase 11 which examines the production of major crops in Nigeria and the area under cultivation will be published later.

The Office would welcome a feed back from users of this report. Every effort has been made to eliminate errors as much as possible, but users may still comment on areas that may appear incorrect or inconsistent.

The FAO technical support during this project is highly appreciated.

O. O. AJAYI

DIRECTOR GENERAL

FEDERAL OFFICE OF STATISTICS.

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CHAPTER 1

1.1 INTRODUCTION

FOS first took part in the World Census Agriculture in 1950 and 1960. This was in response to FAO request for all countries to undertake decennial censuses. However, these censuses were not carried out simultaneously in all regions. Since then FOS has carried out two Censuses of Agriculture - 1974/75 and 1984/85. These censuses are generally referred to as The National Agricultural Sample Census (NASC) since a large sample is used to collect information rather than a 100% enumeration of holdings. The type of information collected include: identification, general characteristics, demographic characteristics, land tenure, area planted, crops grown and yield, farm prices, farm inputs, livestock, fisheries and other insular activities. These conform to the categories of items of FAO statistical development series for the programme of World Census of Agriculture. The two series of NASC were successful on data collection and a preliminary report on farm practice had been published. The 1993/94 National Agricultural Sample Census was undertaken by the Federal Office of Statistics (FOS) in collaboration with Federal Ministry of Agriculture, Water Resources and Rural Development. It had technical inputs from FAO

1.2 PRETEST 1992/93

The pretest was in two phases in line with the design anticipated for census. The phase one operation was carried

out in the five pretest states, namely, Anambra, Bauchi, Kano, Osun and Ondo.

The operation involved the complete listing of the housing units and households within units. Farming households which for this purpose include households engaged in crop farming, livestock and fishing were identified from the listing forms. One out of every four farming households was selected for study. A Holding questionnaire which dealt with farm practice and other agricultural structural issues was administered to all selected households. Also the basic questionnaire, that is the General Household Survey questionnaire, dealing with socio-economic activities of the household (health, education, detailed demographic information, housing status, employment, etc) was applied to all selected households.

The three principal objectives of the Census were:

(a) To provide structural data on Agriculture in Nigeria mostly on those aspects that do not change frequently. In the context of this Census, ^agriculture has been defined to include crop production (temporary and permanent), livestock rearing, keeping of poultry, and fishing and forestry.

(b) To obtain the socio-economic activities, health and educational status, detailed demographic and housing status formation on households, household heads and household members. This would provide Local Government Areas with baseline statistics.

(C) To obtain production figures at the state level. The Census was in two phases: the first was to meet its first two objectives while the second phase was to meet its third objective. This report deals only with the phase 1 of the Census.

1.3 MAIN CENSUS DESIGN

The experience from the pretest and the result of the pretest data processing were used extensively to effect changes in the training for census and drafting of the final instruments for the census.

1.4 COVERAGE

Phase 1: The NASC Phase 1 covered 36 EAs in each LGA. At that time, 540 LGAs had been gazetted by the National Population Commission. Of these 18 LGAs on basis of their relative sizes compared to other LGAs in their respective states were split into sub-LGAs each. Therefore, there were 526 strata each with 36 sample Eas giving a total national sample of 20,232 Eas. Out of each EA, 12 household were selected for study giving a total national sample of 242,794 households.

The 540 LGAs gazetted did not reflect the last exercise of Government to creat new LGAs. Therefore some LGAs on the gazette were in fact two or more LGAs on the ground. Since for such LGAs is was not possible at HQ to sort out the frame of Eas into their respective LGAs, it became necessary to select multiples of sample of Eas in the gazetted LGA. The selection of additional Eas was a condition exercise and a total of about 59 additional samples (each of 26 EA's) were added to the 242,784 indicated.

1.5 SAMPLE DESIGN

The Sampling Scheme adopted was a two phase stage sampling selection: Phase One involved three levels ^{of} ~~od~~ stratification.

The ^{basic} ~~baisc~~ objective of Phase 1 was to provide some baseline data on every Local Government Area (LGA) in Nigeria. The LGA thus became the primary of first level of stratification. The EAs in each LGA were stratified into urban or rural, which thus the second level of stratification. Thus, in listing the EAs within each LGA, the urban Eas were listed first, followed by the rural EAs. Systematic ^{sampling} ~~sampling~~ from the EA list was to ensure that the sample was ^{distributed} ~~distributed~~ between urban Eas in the same proportion as for the whole population, without the need for calculating urban and rural sampling rates separately.

The third level of stratification, again implicitly, reflected general agro-ecological variation. Thus within the rural sector, the listing of EA in each LGA prior to selection was in a serpentine order on the map.

36 EA were to be selected in each LGA using systematic selection with probability proportional to size. 12 households were selected per EA ^{for} ~~foe~~ study, the household being the primary sampling unit.

1.6 DATA COLLECTION:

^{FOS} Data collection was undertaken by enumerators from FOS. FOWS maintains a team of permanent field staff to collect data. The level of education and general development of the country demands this. Enumerators are posted to enumeration areas and live there throughout the period such areas

are studied. Supervisors are based at strategic centres each overseeing the work of the three or four enumerators. Assistant field officers form the next level in the supervisory cadre, three supervisors are supervised by an AFO within each state. There are two or three field officers at the next level to oversee the work of the assistant field officers. The officer is in charge of the work in the state. Each state ^{falls} falls into one of four zones into which the country is divided. There is a zonal controller in each zone.

For the purpose of the census temporary enumerators were recruited to supplement the existing staff. About 4,602 enumerators and supervisors were deployed for the census and data collection took the form of personal interviews.

An enumerator was assigned one EA and a supervisor coordinated a team of 6 enumerators while an editor worked with the supervisor in carrying out field edit on records.

1.7 TRAINING

Nasc was executed in collaboration with the Federal Ministry of Agriculture. Since some of the enumerators were temporary, the content of the questionnaires and manuals were detailed. There was thus the need to ensure that enough time was devoted to training of all categories of staff. There were four levels of training in preparation for the start of NASC in 1993/94.

1st LEVEL: The first level training took place at the Centre for Management Development, Shangisha on the 2nd and 3rd of April 1993.

The trainers were the officers of the Headquarters selected from the Agriculture and Household Statistics as well as the field and Evaluation Departments. The trainers were the Zonal Controller, Zonal Coordinators and State Officers of the pre-test state and some other officers from the Headquarters.

2nd LEVEL: The second level training took place at the Zonal Headquarters: Kaduna for NW zone, Jos for NE zone, Enugu for SE zone and Ibadan for SW zone, from the 12th to 14th of April, 1993.

The trainers were the zonal Controllers with eight Officers from headquarters - complementing the trainers as well as acting as moderators.

The trainers were the state officers, the scrutiny officers and the field officers.

3rd LEVEL: The 3rd level training took place from the 19th to the 22nd of April 1993 in all the headquarters of state offices. All the Supervisors for the Census were trained by those trained during the 2nd level training.

4th LEVEL: The 4th training took place from the 26th to 29th April, 1993. The training was held in at least 3 training centres within the states. All the interviews for the census were trained here by the same trainers at the 3rd level and a few selected supervisors.

STATE STATISTICAL AGENCIES: Training was also conducted for data collection for staff of the Statistical Agencies from 2nd to 5th of June in four zonal offices of the F.O.S.

EDITORS AND CODERS: Also training for coders and editors took place at the Agriculture Survey Division, Lagos from 14th - 25th June, followed by ^{field} practicals for one week. Senior Officers from the Federal Ministry of Agriculture were trained during the 1st level training for the pretest and they were trainers during second level training. They however were unable to take part during the training for the main census.

1.8 DATA PROCESSING: Questionnaires were retrieved from the field for processing at Headquarters. The retrieved questionnaires were first edited and coded manually by trained statistical clerks before being sent to the data entry clerks for computerisation. After data entry had been completed and checked by the programmers, the data diskettes were sent to the Statistician for computer editing and tabulation. The programme for Data Entry was ^{written} by FOS programmers, while editing and tabulation programmes were written by an FAO Consultant who worked with FOS for about six months. The FAO Consultant did a lot in building computer capability among the staff of the Division. All aspects of Data Processing were carried out by our statisticians and programmers.

1.9 SURVEY INSTRUMENTS

Listing Questionnaire This was used to list households in the selected EA and to obtain data on crops grown, livestock/poultry kept and fishing activities.

General Household Questionnaire This was used for sample household in Phase 1 and contained data on socio-economic characteristics of each member of the household as well as housing conditions for the household.

Holding Questionnaire This was for every holding identified as being operated by a member of the sample households in Phase 1 E.A. Data was collected in respect of general farm practice, area of holding, tenure, use of inputs, farm implements, kinds of livestock/poultry kept, access to credit and marketing channels. Most responses on the questionnaire were precoded using international standard classifications.

1.10 Spot/Quality Checks: Right from the planning stage of the NASC need for control of the quality of the various aspect of the programme was realised. Particular attention was paid to field enumeration, this was one major operation whose activities at every stage were evaluated. Several measures were out in place:

- (I) adequate training of the scrutiny staff.
- (ii) development of appropriate instructions manuals.
- (iii) close supervision and monitoring of file activities.
- (iv) development of editing specification ^{for} ~~for~~ each data collection instruments.
- (v) well documented programme of spot checks and re-interviews.
- (vi) validating checks through the use of data from family

Planing Survey (FPS), Labour Force Survey (LFS) and NASC Phase 11 listing.

The measures here helped to assess fully the quality of the data collected during the field operations.

1.11 Consistency Checks: The office has constituted a group headed by a very senior officer from the Methodology Division to evaluate the degree of consistency of the current census data. This evaluation covered the Listing, Holding and General Household Questionnaires. Agricultural data for the past years were examined to see the extent of compatibility with the current census data.

1.12 National Technical Committee of the Census: A technical committee of the NASC was set up. It was made up of officers from FOS, Federal Ministry of Agriculture and some other relevant agencies. The committee was responsible for the design for the pilot test and some aspects of the draft of the main census questionnaire. The committee could not meet during the actual census exercise due to logistics problems but the Federal Ministry of Agriculture was always informed of the progress of the census.

1.13 Census Monitoring Committee: This was constituted to review and monitor the progress of the census. Members of this committee were senior officers from the Agricultural Statistics Division, Household Statistics Division, Field Operations and Evaluation Department, Planing Division and Data Processing Department. This committee met weekly. The committee was very useful and helped to identify areas requiring intervention at every stage of the exercise.

1.14 FAO Assistance: Although the bulk of funds for the census was provided by the Federal Government, FAO assistance was substantial. Four landcruisers, programmable calculators, weighing scales and computers were provided. A two week consultancy in sampling and design was also provided at the beginning of the census. A Data Processing Consultant was provided for six and a half months. The Consultant not only wrote the editing and tabulation programmes but also trained the statistical staff on interactive editing on the computer. The capability of the FOS programmers on the census was greatly improved by the training they received.

CHAPTER 11

SAMPLE SELECTION AND THE ASSOCIATED PROBLEMS

The methodology of sample ^{selection} selection for NASC was as contained in the survey design by Chris Scott, FAO consultant. The preferred design which had several levels of stratification as state and Local Government had the Local Government further stratified into urban and rural sector, with additional level of stratification, this time implicitly imposed on the rural sector to stratify it by cropping pattern. This design was believed to have the twin advantage of marrying most of what was good in the previous sample while at the same time remaining simple in application with regard to methodology of sample selection and estimation procedure. Over all it was believed that the resulting sample will provide us with better estimate than before.

The following steps were taken in the selection process.

- (I) Stratification or grouping of EAs in each Local Government Areas (LGA) into urban and rural
- (ii) The grouping of area within the rural EAs that produce similar crops together in a systematic manner until all the EAs within the rural sector of each LGA was strung together.
- (iii) The selection of 36 EAs systematically in a continuous manner from each Local Government Area. By this implicit stratification, the urban EAs will

appear in proportion to their weight rural EAs with different cropping will also appear according to their presence or weight.

To facilitate the work a two week training of the staff for the sample selection was put in place. During the period, effort was also intensified to get the EAs frame from the National Population Commission (NPC), it was however, discovered that the format in which the frame was compiled by NPC did not include areas by locality. This made both the distinction between urban and rural EAs blurred and affected rural stratification by crop. At this junction the methodology for sample selection was reviewed. The above method was then replaced by a simple straight forward systematic selection of EAs via the cumulation and selection of households which are contained in the frame as supplied by NPC. Under this method 36 EAs were in most cases systematically selected from each LGA. However, due to the marked difference or variance in the sizes of LGAs, it was decided that some criteria was needed to separate large LGAs from the average ones to avoid some LGAs being relatively over sampled or under sampled, with these 36 EAs were selected in each LGA while 72,108 EAs were selected in large EAs.

Soon after the rule guiding the sample selection for this revised method was established, the proper selection started. Once the initial part of the frame came out of the computer,

the work of selecting the sample was done simultaneously with computer production of the frame.

As the sample list of EAs per state were compiled arrangement was made to collect the corresponding sketch maps from NPC.

There were various problems in the course of compiling the frame for NASC. These were:

- (i) Repeated requests and visits to NPC before the frame from which the sample list of EAs was selected.
- (ii) The frame obtained was somewhat defective and incomplete. It was about 95% complete and listing of EAs did not contain listing of localities.
- (iii) Because of the incompleteness of the frame a few LGAs in a few of the states were missing and so sample list for each LGA could not be obtained. Also the non-listing of EAs by localities in the frame presented some sampling problems leading to the review of the methodology of sample selection.
- (iv) Difficulties arising from further state creation was also encountered but it was easier to resolved since in nearly all cases it was a matter of re-allocation of LGAs within the affected, state, except where they were subdivided and boundaries were not clearly defined.
- (v) Where LGAs were split there was the need to draw additional samples.

CHAPTER III

3.1 INTRODUCTION

Nigeria is one of the largest countries in Africa. It lies wholly within the tropics along the Gulf of Guinea, on the Western coast of Africa. It is bounded on the west by the Republic of Benin, on the north by the Republic of Niger and on the east by the Republic of Cameroon.

A land of lush vibrant vegetation and rolling velds, its climate varies from tropical at the coast to sub-tropical further inland.

Temperature is generally very high and increases as one moves from the southern part of the country resulting in a wide geographical variety in physical features.

The diversified geographical regions provide the country with an almost inexhaustible variety. There are two well marked seasons - the dry season lasting from November to March and the rainy season from April to October. Temperatures at the coast seldom rise above 32°C but humidity can be as high as 95%. The climate is drier further north where extremities of temperature are common.

Nigeria covers a total geographical area of 923,768 square kilometres. The population of the country is put at 88,514,501 (National Population Commission 1991). This population is made up of multi-ethnic groups - the major ones being Hausa, Fulani, Ibo, Yoruba, Edo, Urhobo, Efik, Ijaw, Tiv and Kanuri.

3.2 Household Size

The average household size for the country was about 4.7. Plateau State has the highest figure of 5.57. The lowest figure of 3.26 was reported for Ogun State. Majority of the states in the Northern part of the country had average household size of 5.2 while the average size for the South West states was 3.7.

TABLE 1 HOUSEHOLD SIZE BY STATE

S/N	STATE	HH SIZE
1	Abia	4.67
2	Adamawa	5.01
3	Akwa Ibom	4.71
4	Anambra	4.35
5	Bauchi	5.40
6	Benue	5.20
7	Borno	4.48
8	Cross River	4.99
9	Delta	4.24
10	Edo	4.73
11	Enugu	5.15
12	Imo	4.69
13	Jigawa	5.46
14	Kaduna	5.40
15	Kano	5.49
16	Katsina	5.36
17	Kebbi	4.93
18	Kogi	5.05
19	Kwara	4.31
20	Lagos	3.84
21	Niger	4.71
22	Ogun	3.26
23	Ondo	3.63
24	Osun	3.90
25	Oyo	3.95
26	Plateau	5.57
27	Rivers	5.08
28	Sokoto	4.41
29	Taraba	5.06
30	Yobe	4.45
31	Abuja (FTC)	4.27
	NIGERIA	4.7

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3.3 INTENSITY OF AGRICULTURE

It was observed that 72% of Nigeria households were engaged in agriculture, of these 14% were headed by women. About 69% of the households had one holding each, while about 3% had 2 or more holdings. There was wide variation of figures across the states: in Jigawa and Sokoto States, the figures were as high as 97% and 94% respectively, the figure for Lagos State at the other extreme was 5%. Ogun and Delta States recorded figures of 41% and 49% respectively. The remaining states recorded above 50% engagement in agriculture.

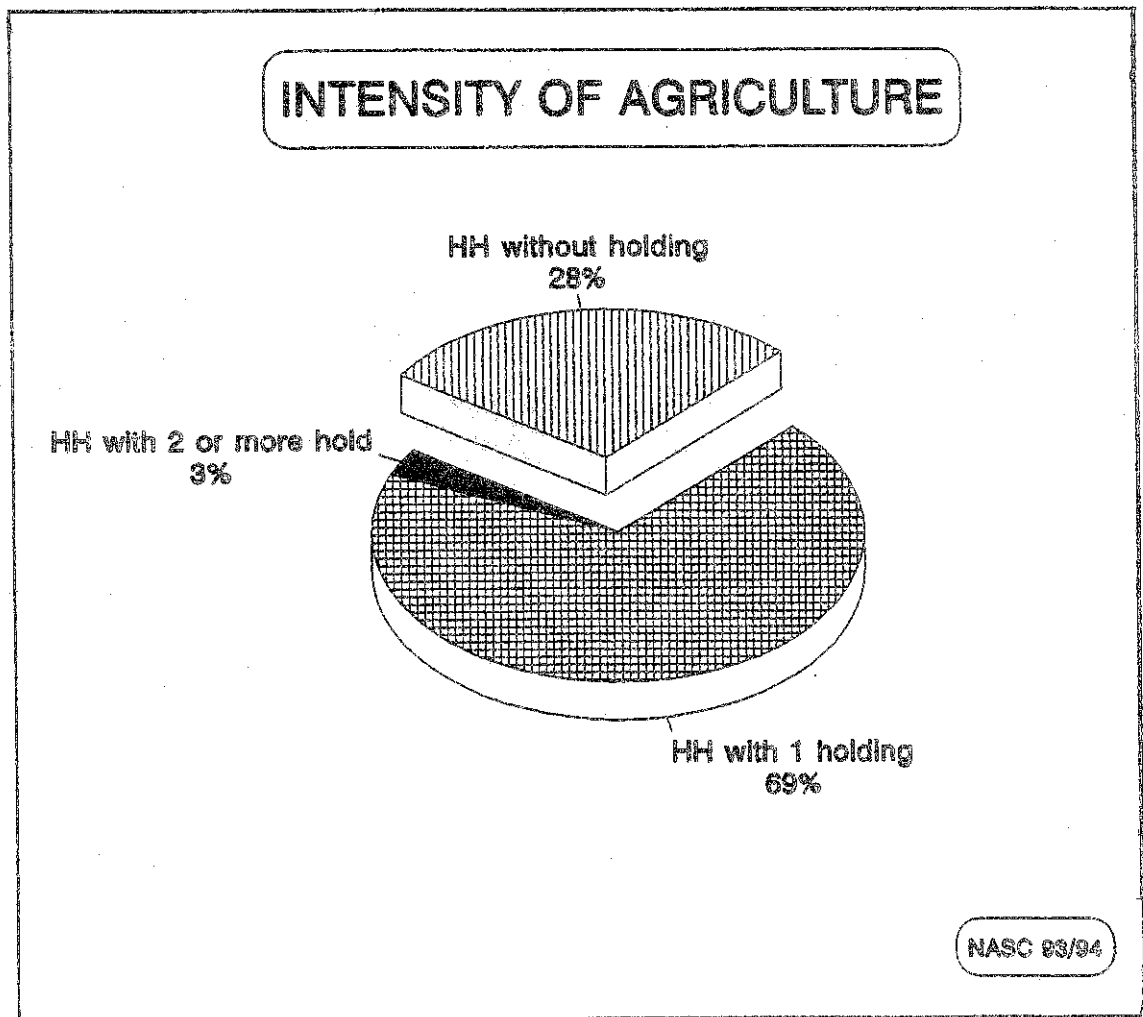
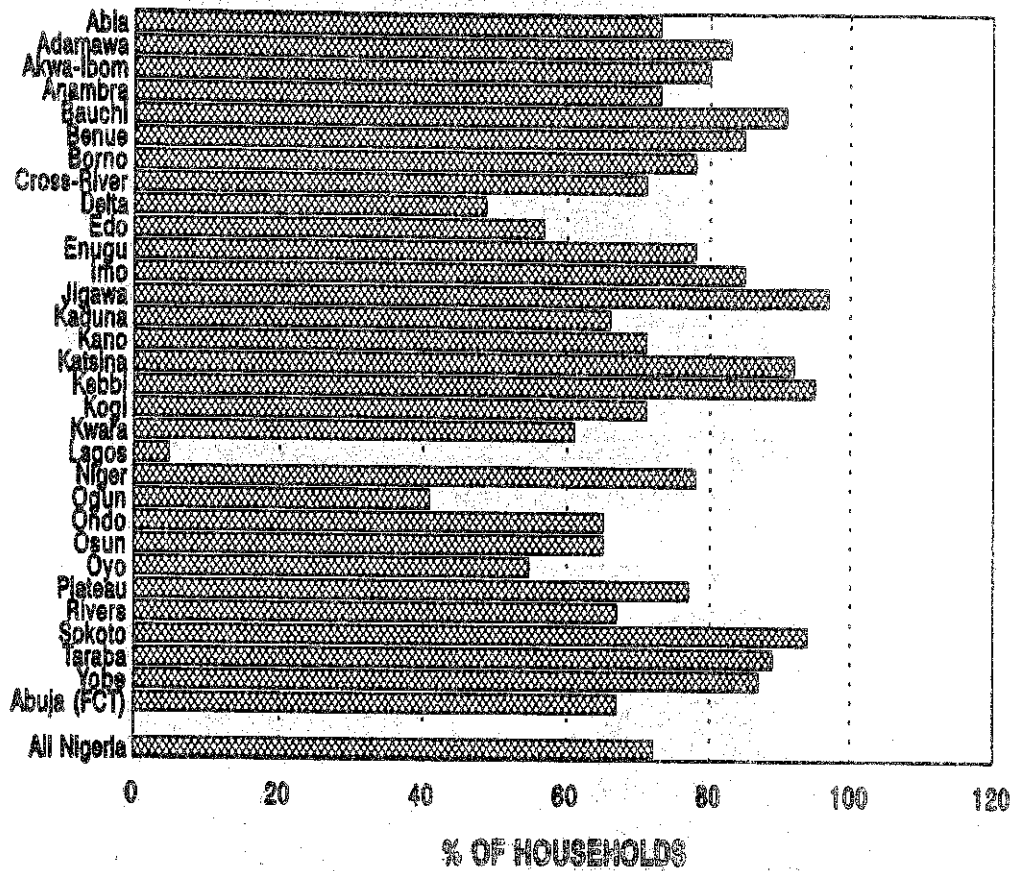


Fig. 1

INTENSITY OF AGRICULTURE

% OF HOUSEHOLDS ENGAGED IN AGRICULTURE

STATE



NASC 93/94

Fig. 2

